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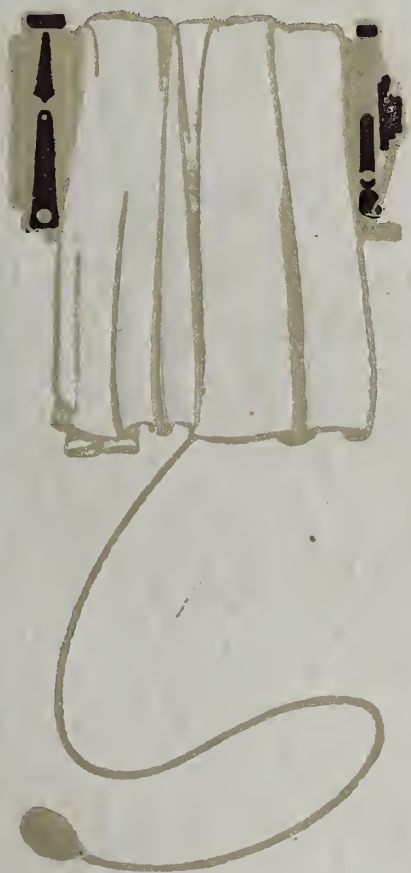

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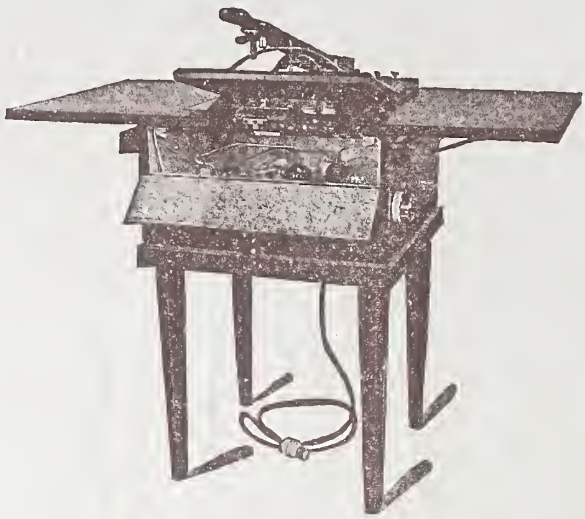

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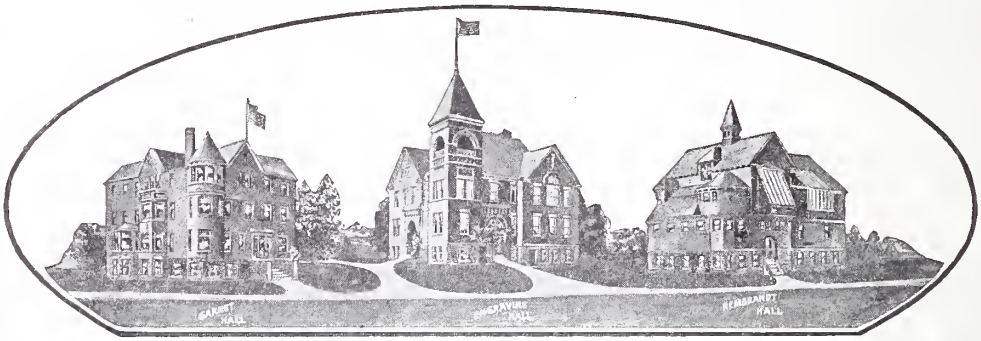

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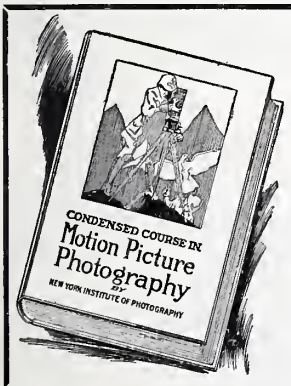

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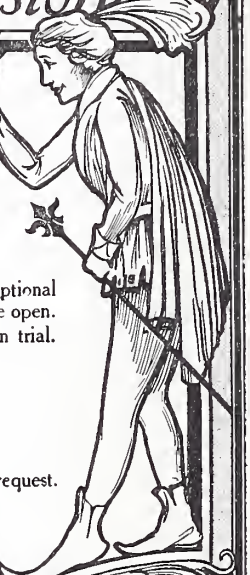

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CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXVII JULY, 1920 No. 7

More About Kallitype

By Sigismund Blumann

After years of experimenting, spoiling good chemicals and paper and wasting much time, I have graduated into the class of adepts in Kallitype, and now use one sensitizer, and one developer, which I compound with scrupulous care in just one way. And the formulæ and the modus operandi are those given by James Thomson in the postscript to *Photo-Miniature, No. 69.* This is a confession and a tribute. After giving help and instruction to others I have, in fact, had the final lesson waiting for me all these years.

About a month ago, having spare time I thought it should be fun to try the Thomson way of doing the thing. It is the only way. By it one may make prints as easily as by the blue print method, and almost as cheaply. It works on any old paper, though variously, and on very thin onionskin or parhymn; or best, on papier mineral it gives something that works in my hands better than the hard-to-get and costly ready sensitized paper of like nature.

The only ingredient that is at all expensive is the nitrate of silver, but as one ounce of it will make one quart of sensitizer, and another ounce will make about a gallon and a half of developer. Even at the present price of silver, a dozen 5x7 prints should not cost over fifteen cents; paper, sensitizer and developer included. It is easy to coat the paper, easy to print, and easier to develop than gaslight paper. There is nothing to it. All one needs is cleanliness, care to follow directions explicitly, and fairly good negatives.

Mr. Thomson recommends sizing, which I never bother to do. I use good paper, and the makers have already sized it just suited to my purpose. Whenever the surface suits as well I use Strathmore papers. There seems to be none so good for the final tone. Any Strathmore works. In one evening by

plenty of light I coat as many as a gross of 5x7 sheets; that is, I coat a larger sheet and cut it to size when dry. Then, wrapped in red glazed paper and tightly packed between cardboards in another wrapper of black paper, I keep the sensitized stock for weeks.

This is how it is done. Take a piece of old film and cut it to a strip two inches wide and six inches long. Also cut a piece of stiff bristol board the same size. Get some double faced canton flannel and cut a strip two and a half inches wide and seven inches long. Lay this bit of cloth on the table before you, put the celluloid over it so that an equal length of the cloth projects at each end. Put the bristol board exactly over the celluloid, turn the ends of the cloth over the end of the film and board and bring the whole together. Catch this in place with a clothes clip and you have a fine spreader, blender, or what you may choose to call it.

Take a medicine dropper and fasten a wad of absorbent cotton over the end tightly, so that it will not come off. This will be your filtering device.

Put a dozen sheets of newspapers on the table before you and rip the folds so that you make take away each sheet as it becomes soiled. Now you are ready to sensitize. That is all the preparation.

You squeeze the air out of the medicine dropper, put it in the sensitizer and let go, as the cotton batting gets saturated it draws the liquid into the tube. When this has taken place, supposing you have a sheet of the paper you intend coating ready on the newspaper before you, you squeeze a little pool in the center of that nice white (or tinted) paper, and quickly proceed to mop it evenly up and down and crosswise and diagonally on that paper. You spread it with a light motion and try to avoid scraping it into the paper. It is on the surface that you want it. You do this with speed and evenness, after several

A STORMY DAY—LAND'S END

EARLY MORNING ON SAN FRANCISCO BAY

tries. At first your fingers and the newspaper underlay will get liberally daubed, but after a bit that will be easily avoided.

As each sheet is coated, lay it aside to surface dry and try another. When you have as many as you shall use within a week, take the first sheet coated and hold it over the gas plate or kitchen stove, no nearer than your hand can bear with comfort, and only long enough to dry. Proceed with all the paper similarly, and as they are dry, lay them face to face. Then cut away the edges that probably were not coated or show brush marks, and trim to size. Do this at night and pack the sheets away with the consciousness that you now have a real photographic paper and one worth respect.

Ah, yes! The formulæ. As simple as the rest. I quote Thomson literally:

Citrate of iron and ammonia	25 grains
Ferric oxalate	15 grains
Copper chloride	8 grains
Oxalate of potassium	33 grains
Gum arabic	10 grains
Distilled water	1 ounce

Mix these in the following way, and no other. Your way may be as good, and this way may seem foolish, but this works out just right and will give you no cause to write in that you do not seem to get results.

In half an ounce of the water, put the nitrate of silver. Let that stand while you measure out the other ingredients, which you will put into a wide necked brown bottle such as metol comes in, for instance, and in which you have already put the other half ounce of water. When the chemicals are all

in the bottle and the silver has been dissolved, pour the latter into the bottles and cork. Do not shake or agitate it in the least. Put it away in the dark for at least twenty-four hours, and when you are ready to use it you may shake it up and trust to the medicine dropper to filter it properly. Do not fear the sediment nor strain it off. That is the essential part of this sensitizer.

The developer is even simpler to compound, as follows:

Silver nitrate	40 grains
Citric acid	10 grains
Phosphate soda	2 grains
Distilled water	1 ounce

This is a stock solution. For use take one dram and add to it one ounce of water. And to each ounce so mixed add one grain of oxalic acid.

Pages might be written telling just how deeply to print and how to proceed. But you are now ready to try for yourself and one or two trials will give you the knack. Whenever results do not come as they should I wash out the trays clean my hands, and start all over. Cleanliness is one of the essentials.

Art and the Daily Life of Man

If you accept an art, it must be a part of your daily lives, and the daily life of every man. It will be with us wherever we go, in the ancient city full of traditions of past time, in the newly cleared farm in America or the colonies, where no man has dwelt for generations to gather round him; in the quiet countryside as in the busy town, no place shall be without it. You will have it with you in your sorrow as in your joy, in your work-a-day hours as in your leisure. It will be no respecter of persons, but be shared by gentle and simple, learned and unlearned, and be as a language that all can understand. It will not hinder any work that is necessary to the life of man at the best, but it will destroy all degrading toil, all enervating luxury, all foppish frivolity. It will be the deadly foe of ignorance, dishonesty and tyranny, and will foster good-will, fair dealing and confidence between man and man. It will teach you to respect the highest intellect with a manly reverence, but not to despise any man who does not pretend to be what is not.—William Morris.

Carbon Prints by Artificial Light

By Ralph Stuart Browne

With Illustrations by the Author

Did you ever try to print carbon tissue with artificial light? If you haven't you've missed something. If you have you are almost as bad off as the fellow who didn't try, but you have the advantage of him in at least one respect for, although like him you have also missed something, you know what it was.

Every fellow who goes in for artificial light carbons misses something. What is it? Well, I'm not going to tell. You see I'm one of those chaps who fell for the game and I feel so dod gasted mean about my experiences that I want to see some other fellows get stung. And you will be, unless—Well, unless you believe what I am going to tell you about how to make them. And I know you won't.

So go to it. But first hear me through, and then when all is said and done, just go and try to make some of the gol darned things in the good old fashioned way, and—then you'll know what you missed, as all good men and true have learned who have trod the path before you. Welcome little brother to our midst. The clan greets you.

When did I try to make my first carbon by artificial light? Well, I can't say just exactly, for I have tried hard to forget the details of that first experience; but roughly I should say that it was about two years ago.

A year later—the interval being spent in trying to recuperate from that strenuous ordeal—I made a second attempt. Hurrah! Victory cast her gracious mantel o'er my receptive shoulders. I produced a tolerable print after three hours of painful waiting in front of a light that was trying to make a record for continuously hitting on all four cylinders.

Remember now, that was a year ago. I was making progress. The year before I had experimented with a light that would have gazed with envy on a single-lunger that never missed more than three out of a possible five.

I was elated with my success, and decided to continue my experiments. In time, I argued, I might be able to produce fully timed prints in not to exceed an hour and a half. The future looked rosy, and insatiate ambition lured me on to further efforts. That was a year ago.

A few days ago I produced some carbons by artificial light with three minutes' exposure. I was bored. What! Three whole minutes necessary to print tissue only seven years old, I exclaimed. I looked at my watch a second time to make sure that I had not made a mistake. Alas, it was only too true. I turned and gazed at the offending forty-eight cylinder light which had replaced the little one-lunger with which I had made my original experiments and made a mental resolution that at the very first opportunity I would put in one of those

new eight hundred and sixty cylindered lights that I had recently been reading about. Then I might hope to turn out some three-second carbons.

"Three-second carbons!" you will exclaim. "Preposterous, man. Cut out the mince pie and caviar, and get to bed earlier and you won't have such dreams."

"Nothing to it," I will return with becoming nonchalance, completely overlooking the insulting reference to my diet. "I have rediscovered the secret of making carbons by artificial light, which every one has known since the dollar watch made its first appearance. "All you have to do is to use lots of light—oodles of it."

Let me repeat the latter part of that statement, so that you won't by any chance overlook it. You need oodles of light. That means light to the *n*th power. Nothing more—nothing less.

You can't pull a long, heavily laden freight train up a stiff mountain grade with a little one-lung engine and expect to get there on schedule time. But if you hitch on a pretty good forty-eight cylinder power producer and step on the gas, you will come pretty near to keeping appointments. What would happen if you switched on an eight hundred and sixty cylinder lighting producer, I leave to your own imagination. My private opinion is that the consignees of the goods on the train would be down at the station looking for their freight the day before the shipments were made.

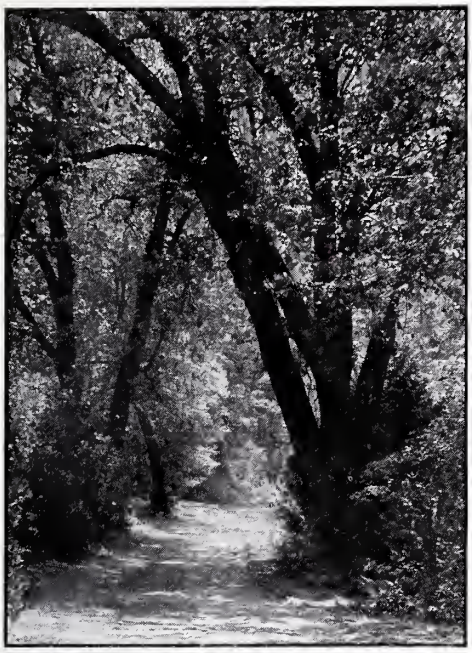
The Editor of the CAMERA CRAFT has seen some of my three-minute carbons, and has asked me for details regarding the making of them. There is very little to be said about them. They were produced in precisely the same manner as other carbons are produced, with the single exception that I employed artificial light in printing them.

The tissue was manufactured by the Autotype Company of London, and was about seven years old. It was sensitized in a five per cent solution of commercial potassium bichromate for a period of three minutes and then permitted to dry over night in the dark-room. It was then placed in a printing frame and exposure made in the ordinary manner.

It is quite possible that in using artificial light, the manner of sensitizing exerts an influence on the time of exposure. That is a question, however, to which I have not been able to devote any time as yet. I have had troubles enough with my light without going into this phase of the subject, but some day I intend to look into the matter.

Now, one point about the tissue before I go any further. In using artificial light in the manner in which I will later describe, it is absolutely essential that the tissue be perfectly dry. It becomes very hot during the process of printing, and if there is the slightest trace of moisture present, it will make its presence manifest either through causing the gelatine to adhere to the negative or the production of an effect on the finished picture very much of the character of reticulation.

It is essential, therefore, that every precaution be taken during the drying period to remove the last trace of moisture. I suggest that before the tissue be placed in the printing frame it be further dried by means of a current of air



A TREE-ARCHED ROAD

A SHELTERED WATERWAY

generated by an electric driven fan. Usually I keep my tissue for at least two days after fan treatment, in a tightly sealed jar in the bottom of which is an open bottle of calcium chloride. Tissue prepared in this manner may be regarded as absolutely free from moisture.

Sometimes as a further precaution I play a stream of cold air on the plateholder while it is in front of the printing light. This, however, is seldom necessary, and is resorted to only where the condition of the tissue is regarded as doubtful.

And now for the light—the key to the whole process. It must be powerful —very powerful. I would like to see those words, very powerful, set in heavy type to help impress the reader with their importance.

Let me ask again: Did you get it? Very powerful. If you did, then you don't need any further help from me in your effort to produce three-minute artificial light carbons; or, for that matter, three-second carbons.

All that I can do now is to explain what I mean by very powerful light, and how it can be produced. Did you get that too? How it is produced. Those words are important. You have probably produced very powerful light suitable for carbon printing lots of time without actually knowing it.

And now let me tell you how it is done.

You use condensers. Simple, isn't it? Yes, but it took me a long time to discover it, notwithstanding the fact that I had had condensers in my dark-room for years and had used them frequently for enlarging.

From the introduction of the condenser into my problem, my troubles began to vanish. It only remained for me to find a suitable source of light. At that time the question resolved itself into a choice of one of two types of

lamp—the arc and the Mazda of the concentrated filament type. I eventually decided on the Mazda, for the reason that it was steadier and subject to better control. The lamp with which the three-minute carbons were printed was a thousand-watt, concentrated filament lamp of the type commonly known as a stereopticon.

Before leaving the subject of lamps, I wish to say that although I have chosen the type of lamp described above, I feel that ultimately I will supplant it with a new type of arc lamp, which I have recently seen described in a technical journal. The life of large Mazda lamps is limited, and the thousand-watt lamp seems to be about as powerful as one is warranted in using. An arc lamp, on the other hand, is more economical in point of cost, and it is possible to obtain types capable of producing a far greater amount of light than the Mazda.

And now a word as to the arrangement of the light, the condenser, and the printing frame. In using condensers for enlarging it is necessary to readjust the distance between the condenser and the source of light for every change in the position of the enlarging easel. Not so in carbon printing, for the reason that there is no enlarging lens used. Place the light as close to the condensers as safety permits, for the closer they are the greater will be the amount of light which you will be able to bring to bear on the printing frame. For the same reason use as large condensers as are available. The source of light being the same in both cases, a large condenser will give more light than a small one.

Now as to the position of the printing frame. The light transmitted by the condenser is in the form of a cone. By introducing the frame into this cone in such a way that the circle of light just clears the corners of the tissue, practically every available ray is brought into play and made to do useful work. If the frame is too close, a portion of the light is lost and the time of exposure correspondingly increased.

This is all that there is to three-minute, artificial light carbons. The rest is merely the old details of development and transfer with which all carbon workers are familiar.

Three-second artificial light carbons is another story, and to be frank, I don't expect to have the pleasure of writing it. I'm going to leave that to someone else. I have blazed a portion of the trail; let others continue the work.

There are many who, after reading what I have written, will think that I have done exceedingly well in producing the three-minute carbon, and that I have actually reached the practical limit in printing these pictures with artificial light. To them, and also to those good friends of mine who have followed the trend of my experiments with questioning eyes, let me say this: The three-second artificial light carbon can be produced. It is only a question of light and cooling. Both problems can be solved. The real question is: Is it worth while? I think so.

But before we reach the three-second carbon we must produce the two-minute carbon, and then the one-minute carbon. I don't regard the production of either of these pictures as much of a problem. It is the old question of getting a suitable source of light.

YELLOW PINE

REDWOOD

I have said that the three-second carbon was merely a question of light. Before closing this article I wish to amend that statement. We have been accustomed to considering the speed of carbon tissue as a fixed thing. If it is really so, then my former statement might stand; but I am of an inquiring disposition, and somewhat of an optimist. I can conceive of no reason why carbon tissue should not at some future time be made more sensitive than it now is. If the Autotype Company and others interested in the development of the carbon process would turn their attention towards this phase of the problem, the three-second artificial light carbon might not be so impossible as many now seem to regard it.

O man, joy taken from another cannot live. It dies when it leaves the victim, and hangs a dead weight upon your soul. It is only when we give, that we really live. It is only when a man forgets himself . . . that God assesses him. "The Foot of the Rainbow."

Hence it is that the search in common for certain qualities, constitutes a real school, as distinct from a set of imitators. The Dutchmen tried together for the same things for what has been called a portraiture of nature; for accuracy and subtlety of painting upon an accuracy and subtlety of drawing which serves as a base.—JOHN LA FARGE.

Don't simply see how you can "put in the day"; see how much you can put into the day.—*Forbes Magazine.*

An Amateur In Tennessee

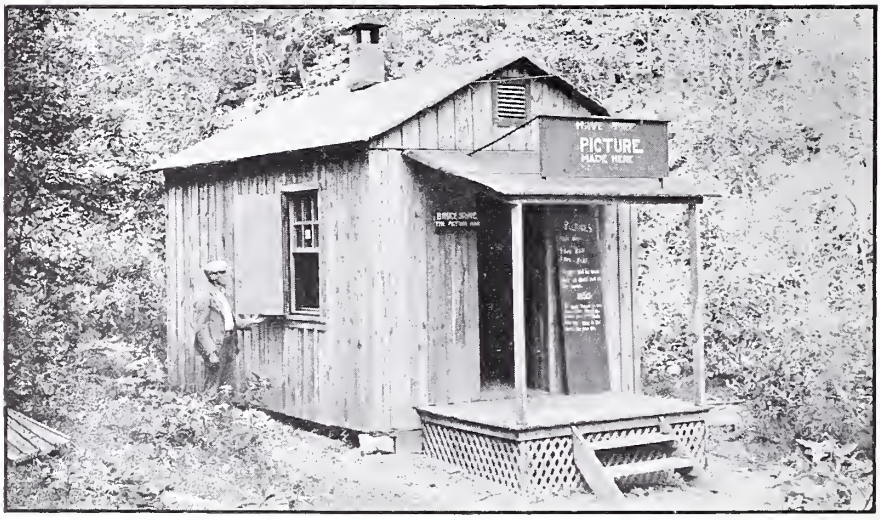
By Bruce Stone

With Illustrations by the Author

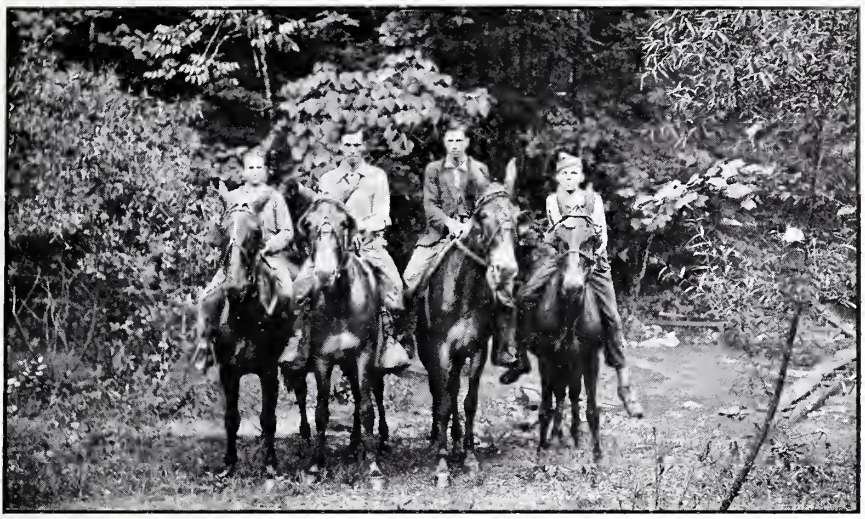
I am an amateur photographer, living about two miles from town, out here in the hills of East Tennessee, so the reader can judge how often I find someone to talk photography with, someone to swap experiences with. Quite naturally, the magazines come in as a means of keeping in touch with what others are doing; and, of course, they have kept me out of many pit-falls that lie in the path of the amateur, particularly the isolated one who must depend upon his own resources to a greater extent than the town or city dweller.

For a number of years I did all my developing and finishing in a room in my dwelling, but it is quite difficult to keep such a room at the proper temperature and free from the dust and lint that will float about in a furnished house. In addition, I had to do all my work at night, because of the difficulty of making the room light-tight without being air-tight as well. Furthermore, the room was really needed for other purposes, precluding any idea of fixing it up permanently as a photographic work-room.

As my father has a saw mill, making a supply of lumber available, and as I am capable of doing fair carpenter work, I decided to build a small house for my photographic work and devote a little more time thereto. The structure is 10x16 feet, boarded on the outside and plastered within, making it easy to keep clean and free from dust or lint. It has hinged wooden shutters on the outside of the windows and these are fitted so that I have only to close them



MY PHOTOGRAPHIC HOUSE IN THE MOUNTAINS



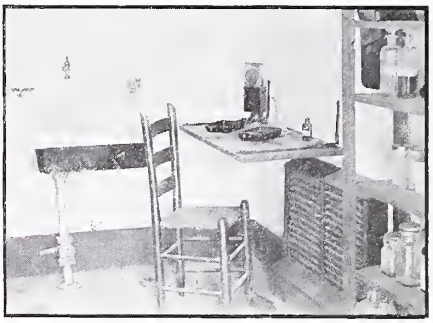
A GROUP POSED IN MY OUTDOOR STUDIO

to have a perfect dark-room, both these windows and the door being fitted with shades on the inside as a double precaution.

Good ventilation is achieved by a trapped grill over the door in front, and another under my developing table at the rear, inside. This last is really a shelf of good proportion, hung to the back wall by two strong hinges that permits it to be turned up out of the way when not in use. To the right of this is a sink and to the left, against the side wall, is a tier of shelves, about eight inches wide and eight feet long, on which are kept my bottles, trays and photographic supplies. In winter the ventilators are partially closed and a small stove installed in the center of the room. From a fine, cold spring, just above the house, I have piped the water into my sink; and, as the temperature of the water is the same, or nearly so, summer and winter, I am more than fortunate in this

SOME OF MY EVERYDAY POST CARD WORK

READY TO MIX MY DEVELOPER



MY DEVELOPING TABLE

respect. It is easy to see the advantage of my present quarters over those afforded by the room in the house.

While my camera is adapted to use both plates or film, I use plates almost exclusively, developing by the tray method. My favorite developer is pyro, the formula being as follows:

A:	Pyro	1 ounce
	Water	28 ounces
	Oxalic or sulphuric acid	a few drops
B:	Sulphite of soda	3 ounces
	Carbonate of soda	2 ounces
	Water	28 ounces

To develop, take one-half ounces of A and B and add four ounces of water. If I have none of the above stock solutions made up and wish to develop only one or two plates, I take five ounces of water, add five grains of pyro, twenty-four of sulphite and sixteen of carbonate, and I am ready. A ten per cent solution of potassium bromide is always close at hand, and if a plate develops too fast, I add from five to ten drops to the developer.

I get rather lonesome out here in the country and would like to hear from any of the readers who might care to write. I don't like to make any rash promises, but I will try and answer such letters as my limited time away from a busy farm life will permit. My address is R. F. D. 1, Box 98, Jacksboro, Tennessee.

Learn the technique of photography well, then use it wisely.

Learn to look and choose subjects for their simplicity of form.

Then, having learned to see, choose your own material, and deal with it according to your own lights and taste.

Never forget the limitations which necessarily hedge in photographic and other methods of monochrome art.—W. Thomas.

You cannot build up an altogether new system of architecture or of morality; all that you can do is to slightly modify the forms which your fathers have left you, by the occasional introduction of new ideas.—Ralph Radcliffe Whitehead.

More About Light and Exposure

By L. E. Rea

With Illustrations by the Author

A number of years ago, in company with a friend who was also a photographer, I was walking down the beach in order to reach a ship that had drifted ashore in the fog of the night before. The question arose as to the proper exposure under the conditions prevailing at the time, a mist-laden atmosphere still enveloping the scene to some extent. According to my friend's exposure meter, one of the sensitive paper type, one twenty-fifth of a second at f-11.3 was correct, while my own good judgment, supplemented by a rapid mental calculation, told me that at least one-fifth of a second would be necessary with such a stop.

We both made several exposures on the wreck and later returned home, both perfectly satisfied that some good pictures would result. To put it mildly, I was somewhat crestfallen to find, upon developing my plates that the exposures given were entirely wrong; and still more chagrined when I learned later that my friend had secured some beautiful negatives. I am relating this simply to show that an atmosphere surcharged with moisture, yet fully illuminated by sunlight, is nearly as strong in actinic quality as direct sunlight. Since learning this fact myself I have made many exposures along the beach under like condi-

A RIVER VISTA

tions and always with the best of success; all harshness being subdued, and even the deepest shadows fully illuminated.

In direct contrast to the above we may call attention to the lack of detail or illumination so common in pictures taken of rocky or precipitous subjects in high altitudes. But if one will stop and consider the matter, the difference between the perfectly dry atmosphere that allows the light to pass directly on its course and the moisture-laden atmosphere that disperses and distributes the light, the reason becomes quite clear. In the case of the clear atmosphere, there is nothing to break up the light and deflect a portion of it into the shadows, while in the other case the atmosphere vibrates with reflected and re-reflected illumination.

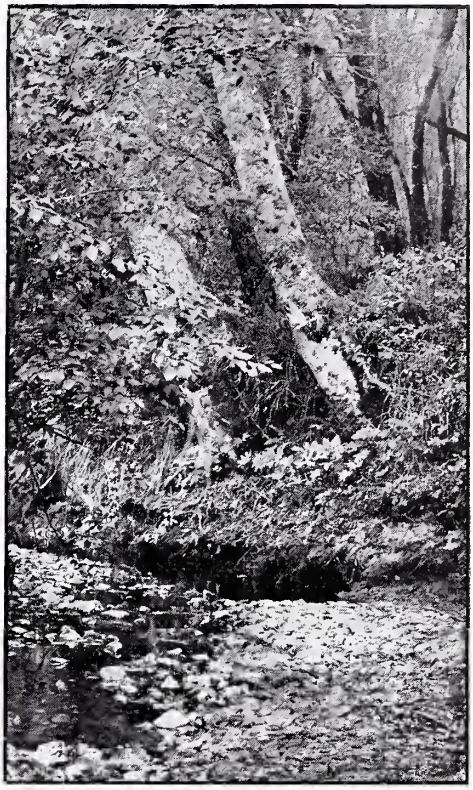
And from these examples it is but a simple matter to understand why an out-door portrait taken on a foggy or overcast day is much more soft and agreeable than one made in direct sunlight. Under the first conditions the results are soft and harmonious, while under the latter they are contrasty and harsh, the nose and chin, for example, standing out against their own dark shadow like a protruding rock in the side of a cliff in our mountain scenery.

One can, if he will but form the habit of connecting up his exposures with the results brought out by developing, learn much that will be of value to him, particularly when working under other than the usual light conditions prevailing with a clear atmosphere and normal sunlight. If one has, as most of us have, a certain standard set of exposure for ordinary conditions, it is only necessary to remember that under a certain unusual condition the exposure was increased or decreased by a certin per cent. We go afield and find streamers of sunlight penetrating the mist that has collected amid the trees on the edge of an open space. We say to ourselves that these trees would, under normal conditions, require a half second exposure at stop f-11.3; but owing to the heavy mist, almost a fog in fact, we decide to give fifty per cent more exposure, or one and one-half second. This is not difficult to remember, the fifty per cent increase of exposure, and when the plate is developed we know whether our calculation was a right or wrong one, and we continue to remember both the fifty per cent increase and the result thereof, long after we would have forgotten the exact exposure and stop used had we tried to remember them in connection with this particular atmospheric condition.

Light conditions in the early morning hours are generally much as they appear to the eye, and exposures made at such times require only the lengthening of the exposure necessary to compensate for the lack of light. But the evening hours are an entirely different matter. It is not at all unusual for the light, near sundown, to be of such a decided yellow tinge as to make necessary an almost unbelievable increase of exposure. This condition of the light is not always easy to identify or measure by the eye alone, and yet, if one will but form the habit of watching the color of the sky, a close approximation of the amount of this yellowness can be made. With the light clear, the sky is blue; but as the light becomes yellow, the sky takes on more of a green tinge, due to the admixture of the yellow light through which it is observed.

By following the plan suggested of coupling up one's exposures with the

A ROADWAY



THE BIRCHES

results secured, a great deal can be learned as to the effect produced by slightly over or under-exposing different subjects. Quite often one wishes to secure a certain effect that a departure from correct exposure will help him to achieve. The subject may be somewhat flat and slight under-exposure will result in a few dark accents that greatly improve the picture. Again, the subject may be one having excessive contrasts that slight over-exposure will greatly minimize, particularly if development is rightly carried out.

By this time the reader has no doubt wondered why I have neither recommended or condemned the exposure meter as a means of securing correct exposure. Let me say right here that exposure meters are all most excellent guides in their way. Some are better than others, some are best suited to certain workers, and others to workers of a different temperament. But in no cases should they be employed as crutches upon which to lean, else the party so using them will soon become a cripple, unable to get along without one, progressing with more or less difficulty even with their aid. Excellent as they are, some judgment must be used in connection with them. As an example, I recall an incident that happened a few years ago. A certain exposure meter had just come upon the market in this country, and my two companions on a photographic expedition were both quite enthusiastic over its merits, both having purchased and both having used it with the best of results. During our search

for pictorial material we came upon a pretty bend in a small tree embowered stream, a point from which the view, both up and down stream, lying at right angles to each other, were both worthy of a plate. Getting out their meters my two friends promptly discovered that the view up stream required an exposure of a certain duration with a stop decided upon as the one most suitable. Each made an exposure, and then their attention was turned to the other view, the one down stream. The question of exposure again came up, but as the light was exactly the same, and as the scene presented the same kind of material, the exposure must be exactly the same. But was it? Most decidedly not, for the simple reason that the view up stream had the light almost flat upon it, while the other down-stream view, with the sun at the side, presented the trees on one entire side as a mass of deep shade. As soon as their attention was called to the matter, they at once realized the difference, but they had been so dependent upon and so confident in the infallibility of their meters that they had entirely overlooked this matter. Both views presented near-by trees and dark shadows, but in one case the dark shadows only showed their edges, while in the other case the same dark shadows occupied the major portion of one side of the view.

For that reason, much as one may favor the use of an exposure meter, may habitually use one himself whenever in the least doubt as to the exposure, he is justified in hesitating to recommend one to another worker without making sure that the user will not ask too much of it. They are not automatic, they are not endowed with reason. If they were, we could no doubt attach them to some part of the camera and forget all about length of exposure. But they are, quite a number of them, capable of rendering one almost invaluable assistance in the matter of determining the correct exposure, particularly under abnormal conditions such as those mentioned in the opening paragraph of this little article.

Taste, if it mean anything but a paltry connoisseurship, must mean a general susceptibility to truth and nobleness; a sense to discern and a heart to love and reverence all beauty, order, goodness, wheresoever found and in whatsoever form and accompaniment.—CARLYLE.

Using Stale Developing Paper

By F. R. Roddier

All unused photographic paper that has been sensitized with silver salts, will, with the lapse of time, become what is known as stale. This condition makes itself manifest on developing by the darkening of the high-lights, sundry irregular blackened areas along the borders and across the face, and by a general muddy appearance.

The time required to bring about the changes that produce these effects varies with the character of the paper and the conditions under which it is kept. Speaking generally, the more the paper is exposed to the action of the air the sooner will it deteriorate. Dampness is particularly detrimental to photographic paper, while gasses of almost any character will likewise have an important influence on its life.

For this reason it is advisable that unused photographic paper be kept in a box as nearly damp-proof and air-tight as it is possible to make it. Boxes such as carbon workers frequently provide themselves with, form admirable containers. A small open bottle of calcium chloride to absorb any moisture which might possibly find its way into the box, is a wise investment. Sensitized paper kept under such conditions has a surprisingly long life.

Paper that has become stale is not necessarily valueless. With a knowledge of how to handle it, it is quite possible to produce prints fully equal to those obtained from fresh stock. My attention was recently directed to the problem of using some of this old paper by a friend who had accumulated quite a lot of it in the course of years, and who had hesitated about throwing it away, thinking that possibly it might have some value.

The subject interested me, and after obtaining samples I set about seeing what could be done with it. The paper for the most part was what is known as developing-out or gaslight paper, and consisted of various grades of Velox and Azo brands.

Looking up the subject in various books and magazines I came across several formulas which it was claimed would give excellent results with this particular kind of paper. They could be grouped under two heads; those calling for the addition of large quantities of bromide of potassium to the regular developing solution, and those calling for the bromide with a small quantity of potassium permanganate.

Either my paper was too old or else the writers had been over zealous in their claims regarding the merits of their various formulas, for I was unable to substantiate any of the statements made by them.

Then one day I came across a brief note in a photographic journal in which it was stated that a writer in the *Amateur Photographer* (England) had sug-

gested the addition of both bromide and cyanide of potassium to the developing solution in the handling of stale paper.

Being in that particular frame of mind in which I was willing to try almost any suggestion, I decided to make some experiments along the suggested lines. My very first prints demonstrated very clearly that I was on the right track, and after a few trials I was able to so compound my solutions that I had not the slightest trouble in producing bright, sparkling prints from this hitherto valueless paper, prints that were in no ways distinguishable from those obtained from fresh stock.

The two prints which accompany this article were made from some of this paper, and in order that no question might arise as to the genuine value

ORDINARY DEVELOPER

RESTRAINED DEVELOPER

of the process, both were made from portions of the same sheet. One was printed and developed in the ordinary way without the addition of the extra bromide and cyanide of potassium. The other was printed for exactly the same length of time as the first one, and then developed in the same solution to which had been added the bromide and cyanide in the manner in which I will hereafter describe. Each print tells its own story. The paper bore the expiration date "Feb. 1, 1910."

Now, as to the method of manipulation. The developing solution recommended by the manufacturers is first prepared. To this is then added, in small quantities at a time, equal volumes of ten per cent solutions of bromide and cyanide of potassium. The quantity to add can be determined only by making test exposures on small strips of paper and then developing. When the highlights show clear and bright the solution is ready for use.

Now for a few details. Do not add too much of the bromide and cyanide. The cyanide is a powerful solvent for silver, and it is quite possible to add an amount that will prevent the appearance of the image. The developer must be a fairly rapid one, not requiring much over thirty seconds for complete

development. Slow development permits the bromide to produce secondary effects. One of these makes itself known by the coloring of the image a disagreeable olive green.

The cyanide also tends to produce disagreeable colors. Under some conditions it will give a pink coloration with mottlings of various shades from orange to brown. Sometimes a combination results in which all these colors appears and then the paper resembles the work of a three-year-old colorist trying to give an imitation of a futurist. When any of these effects appear, the experimenter may feel assured that he has not added his bromide and cyanide solutions correctly and steps should be taken at once to remedy the trouble.

My experiments were confined to the type of paper mentioned above. I would have liked to have continued the work with bromide and printing-out paper, but not having suitable samples at hand was compelled to defer the matter.

The treatment of stale bromide paper has evidently received more attention at the hands of investigators than the kind that I worked with, for in the course of my investigations I came across a great many suggested ways of treatment. In the near future I hope to be able to report on some of these and also the possibility of adapting the process described above to these two types.

Transportation of Exposed Plates

By Thos. Farwell

Those who have had occasion to carry exposed plates around with them on long trips can well understand some of the difficulties which this apparently simple problem presents. For a number of years I have been a member of the fraternity that, with the advent of spring, bids a merry adios to the comforts of civilization, and then for many long, care-free weeks, joyfully tread the strange paths that lead through our little known mountain defiles, and who, when the days begin to grow shorter, returns with a heterogeneous collection of undeveloped plates—and all the troubles which millions of pin-holes, scratches and cracks can create in the mind of your true enthusiast, who, when he beholds the damage wrought, gnashes his teeth in impotent rage at the crudity of the tools of man.

Time and again I have studied the problem of transporting plates safely, and many a fantastic scheme have I evolved of carrying them through the dangers which beset them from the instant they leave the box in which they were originally packed until they reach their ultimate destination in the crowded confines of civilization—the developing tray.

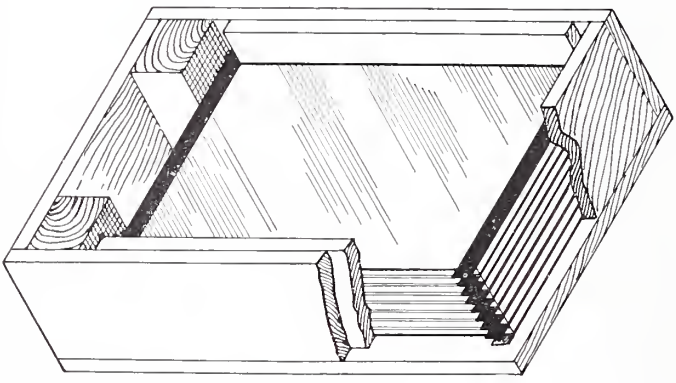
One year I provided myself with a large number of old and otherwise useless plateholders; thinking that after exposure the holders could be relied

upon to ward off accident. But the scheme was a failure. Not only were the holders bulky and undesirable impedimenta, but they proved to be fine dust collectors, the joltings which they received brought the covers into frequent contact with the tender emulsion and the very effects were produced that I was trying to guard against. Again, the slides being fragile, were frequently broken, and I had to write "total loss" more often than was good for my peace of mind. I abandoned the slides as safe and sane carriers with a mental note that they were a delusion and a snare.

On another occasion I provided myself with a large number of the original boxes in which the plates came and tried, after exposure, to repack them, even using the identical end strips which serve to protect the sensitive surfaces from injury. I still have painful recollections of the many hours that I passed in hot, stuffy tents trying to make those plates fit into place, and still more painful twitches when I recall their appearance when weeks later they came from the drying racks. No more original boxes for me.

But I was not discouraged. I simply had to solve the problem. And I did. I have just returned from one of my annual trips, a little ahead of time so that I might determine whether or not my scheme was a success, and I can say confidently that the transportation of exposed plates in the field need have no terrors for anyone who will follow the procedure that I have worked out.

I felt that the solution of the problem lay in a strong, light-tight, dust-proof box that would permit of the insertion of the fingers for the handling of the plates, with some provision that would keep them from touching. I drew up designs for a large number of such boxes, and after some experimenting, selected the one shown in the sketch herewith. For convenience we will assume one to take 4x5 plates.



SHOWING STRIPS IN POSITION

The box may be constructed of either heavy cardboard or any light wood. For plates 5x7 or larger, wood, because of its greater strength, should be chosen. In the left hand corners two small blocks, as shown, are first glued into place. These serve as guides and also create a space at that end which permits of the introduction of the fingers for the handling of the plates. Along the sides are two flat pieces, three-sixteenths of an inch thick. These serve as additional guides, and, being a little less than a half inch shorter than the distance between the blocks and the other end of the box, provide pockets into which the ends of the strips of cardboard, shown as black in the sketch, are held in place. These cardboard strips are three-sixteenths of an inch wide and four and three-eighths of an inch long. They serve to keep

the plates from touching, and should be of fairly heavy material. The space between the side guides and the end blocks, the space in which the plates rest, is made one-sixteenth of an inch larger than is ordinarily necessary in order to take care of any oversize variation in the plate.

When a plate after exposure is taken out of its holder to be packed for transportation, two of the cardboard strips are first placed in the bottom of the box in the position shown in the drawing. The two corner blocks and the side guides prevent their lateral movement. A plate is then placed in position with the emulsion side down; the two ends resting on the strips of cardboard. As a precaution against the leakage of light, a piece of black paper, cut to 4x5 size, may then be placed on top; and if one so desires, another slip containing a record of the plate and any useful information regarding it that one may desire.

This done, two more of the cardboard strips are placed in position, and the box is ready for another plate. The work of packing continues until all of the exposed plates are safely disposed of. It may so happen that a box is only partially filled. In such a case, to prevent movement of the plates during transportation, blanks of either cardboard or light wood should be carried along to help fill in.

The height of the box may be varied to accommodate from one to three dozen plates. Personally, I prefer those holding an even dozen as the most convenient to transport.

Naturally, in order to make the container light and dust-proof, it must have a cover. It may be a single one which slips completely over or it may be a double one, constructed precisely as are the original boxes in which the plates are packed. That is a matter of individual choice and depends largely on how tight the first cover is made to fit.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

MAKING UP M-Q DEVELOPER: Occasionally I have trouble in making up my metol-hydroquinone developer; or rather, did have, sometimes securing quite a deposit in the bottom of the bottle, a deposit I knew should not be there. A demonstrator gave me the following method, and since then I have had no trouble. I first dissolve the metol in one-third of the water and then add half of the required sulphite. In another bottle or graduate I dissolve the other half of the sulphite, then the hydroquinone and bromide; dissolving the carbonate in a third bottle or graduate containing the remaining one-third of the water. With all dissolved in these three solutions, I pour the hydroquinone into the metol solution, and lastly add the carbonate solution.—T. G. B., New York.

DOING AMATEUR FINISHING: I do quite a little of this work and find it pays well to cultivate the confidence and good will of my customers in that line. If the business that resulted was to stop with that class of work it might

be different, but not infrequently I have good customers come to me through the flattering recommendations of my amateur friends. Near at hand to the counter where my finishing orders are handled, there is a series of three cards, one showing three prints from a good, normal negative, printed on fast, medium and slow paper; one showing a print from a too thin negative, made the best I know how, and another on wrongly selected paper; and the third the same treatment of a hard, undertimed negative. The first card enables me to ascertain whether the particular customer is partial to hard or soft results, and the other two are quite convincing as to my ability to secure the best possible results.—T. G. B., New York.

INTERESTING WINDOW DISPLAYS: The average professional photographer never thinks of using anything except samples of his work as a display. I have found that something different makes an interesting change. Not long ago I borrowed an old lens, somewhat of a curiosity, from my stockhouse, and displayed it alongside of one of my best lenses, shutter and all. The first bore a card explaining that such a lens was used in grandfather's day, necessitating several seconds exposure with a head-rest to prevent motion; the other calling attention to the superiority of the present-day instrument, requiring only the fractional part of a second for the securing of much better results. Another time I borrowed an old-time Daguerreotype from one of my customers and labeled it: A picture taken in grandmother's day; each one costing three dollars and the inconvenience of a long sitting. This was shown in connection with one of my own popular styles bearing a suitable explanation covering the price and simplicity maintaining today. Another pair showed the way an artist draws a horse running and the actual position of the horse's legs as proven by photography. In addition to the interest the show-case has for the passer-by, I find it not at all difficult to secure somewhat extended comment upon the point brought out, in the local paper, by simply explaining to the editor, a little of the technique involved.—E. D. C., Vermont.

CUTTING PRINTING MASKS: I do not believe in using set sizes of masks, preferring to mask each negative as best suits its individual character of composition. The result is that I cut a large number of masks in the course of a year. My method is as follows: All old mounts, soiled cardboard, and even pasteboard boxes, are saved to provide material from which I cut pieces the size of the openings desired, using my print trimmer to insure absolutely square corners. A form so cut is placed on a sheet of mask paper and with a sharp pencil a mark is made all around. Then placing this marked paper on a sheet of glass I cut around the four sides, using a ruler and a sharp knife, always with the ruler on the outside so that should the knife slip the cut will be where it will do no harm and also because this allows me to see the position of the corner lines. Should the knife pass beyond the corner it is a simple matter to paste a strip of gummed black binding paper across the false cut. I find this method quick and simple; in fact, it is easier to cut a new mask than it is to search out one of the proper size, although the masks are generally gummed to the negative edges and put away therewith.—C. V. B., New York.

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

Vol. XXVII San Francisco, California, July, 1920 No. 7

The I. P. A. Circulating Albums

Now that the war is over and a more normal condition prevails, it would seem a quite opportune time to get together the loose ends and systematize, as far as possible, the circulating album activities of the International Photographic Association. The growth of other interests has prevented Mr. Winchell from giving his office, that of Chief Album Director, attention, and not a few of the State Album Directors and Secretaries have had to give up the work, for various reasons. We must, practically, form almost an entirely new organization, and to that end would be pleased to hear from members of the I. P. A., or readers who might become members, who would care to take up the work. And there is some work connected with it, and some little expense. Letters must be written and postage paid thereon. The truth of the matter is, about all that the acceptance of a State Directorship or Secretaryship for the I. P. A. has to offer is a better opportunity for getting out a circulating album than the individual would enjoy were he working independently; working along lines such as are usually followed. By having a State Album Director and a State Secretary the work can be divided up, and should at any time, one or the other find that he had to give up the work for any reason, his co-worker could carry it right along, and thus avoid the disappointment that has resulted from such discontinuance where only one officer was in charge.

The idea was, and I see no reason why it should be changed, to have two members located in some central city in each state, get in touch with the other members in their state and start a circulating album therein. One, the Album Director, would be charged with the work of making up the albums and route list, and starting them out, while the other, the Secretary, might make it his work to see that each one on the route list reported the album as being received, and later sent forward; in other words, keep the albums from becoming delayed or lost. Both officers could write an occasional letter in an effort to secure the interest of new members joining from their state, or perhaps to old members whose interest might be enlisted. These various state officers would conduct their several circulating album routes much as they saw fit, and later we might, by asking for the opinion of them all in turn, secure a sort of combined opinion on the best plan, something that would result in a standard that could be adopted by all.

The duties of the Chief Album Director were supposed to be the making of equitable exchanges of albums between states, the inspection of the work shown in all the albums with an eye to inviting certain ones to contribute to a set of foreign albums and certain others to contribute to a pictorial portfolio, and otherwise use such effort as he could to further the interests of the Album

Division. With everything in good working order, a State Album Director would only have to get out about three albums a year. His own state album would go over the route made up of the names and addresses of those he had induced to contribute thereto. Then the album would be sent to the Chief Album Director, who would send him, in exchange, an album of equal interest from another state, and this in turn could be exchanged for a second and the second for a third. The State Album Director would, therefor, be sending out only one album of his own state, followed at monthly intervals by albums from three other states. Any reasonable member would, we feel quite sure, be perfectly willing to contribute prints to one album in exchange for the privilege of seeing his own state album and three others of like good quality, an advantage that he could not expect to derive from a circulating album club conducted in the ordinary manner. And, of course, this advantage lightens the effort required on the part of the officer or officers having charge of the albums without in the least detracting from the interest and enjoyment one can find in the work of keeping such an album club running along nicely, particularly if one has the time and an appreciation of the pleasure to be derived from the correspondence with congenial spirits that the work involves.

Our Postal Magazine Club

Six of our readers wrote in as ready to join and help along such a club as we outlined in our editorial in the May issue, and two called in and did the same. And we wanted at least twenty. But the showing is not as discouraging as it might seem because nearly a hundred wrote in to explain that they feared their experience was not wide enough, that their time was too limited for special experimental work, that they would join but did not like the idea of what they wrote being quoted in our pages, that only the last man on the route list would get an opportunity of seeing what all had written, and so on. We have not had time to answer all these letters, and therefore will try to explain matters here, doing so in the light of the many good suggestions made by those few who were ready to join at once. To be a helpful member, one need not have wide personal experience in every line of work that may come up as a topic; one cannot help but have some ideas on the subject, and he might even quote some advice thereon from some article he can easily locate. There will be no call for any special experimental work; in fact, there will not be time, as a rule. When the combined club letters are finally worked up into an article on the subject, there will be practically no mentioning of names except as some member is commended for a specially good suggestion. The club letter or "magazine" will continue on its route until every member has seen the entire contribution; and further, it is our intention to furnish the postage required to take the "magazine" over its route, doing this as a partial return for the material the combined efforts of the members will provide us for what we feel quite sure should make a good article on each subject discussed. So please turn back to the May editorial on the subject, read it, and then write and signify your willingness to at once take part, at the same time, offer any suggestions that you may think worth considering.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D.

Problems In High-Power Photomicrography

The following is a paper presented at a joint meeting of the Faraday Society, the Royal Microscopical Society, the Optical Society and the Photomicrographic Society, by R. E. Slade, D. Sc., F. I. C., and G. I. Higson, M. Sc., A. I. C.

In an investigation of photographic emulsions we have found it necessary to take photomicrographs, using the greatest resolving power which we could obtain. In our attempts to overcome various difficulties inherent in different forms of apparatus, we have constructed an apparatus which we believe contains some novel features.

The source of illumination is a one hundred candlepower "Pointolite" lamp contained in a light-tight box, a light-tight connection being made between this box and the sub-stage condenser of the microscope, which is used in a horizontal position. Although this box is not ventilated, we have not been troubled by heat from the lamp. No optical system or heat-absorbing cell is interposed between the Pointolite lamp and the condenser, but an arrangement is fitted for introducing a color screen in this position. The microscope is used with or without an eye-piece in a room which is totally dark, and the image is projected on to the plate, placed in a holder about one foot from the microscope, no camera being used. The whole apparatus is mounted on a solid block of ash. Focusing is done direct on to a piece of white card placed in the plateholder, a shutter is then brought down just in front of the eye-piece of the microscope, a plate put into the plateholder, and the exposure made.

This shutter, which is mounted quite separately from the base of the apparatus, consists of a roller-blind shutter release, to the teat of which is attached a flap of black card, which is lifted clear of the path of the light rays by pressing the bulb of the release, exposure thus being made with complete absence of vibration.

In order to surmount the difficulty of imperfect achromatization of the lenses, a green filter is used and photographs are taken on process plates sensitive to this light. In all apochromatic lenses there is always a good deal of curvature of field, and we should like to suggest that for photomicrographic purposes it would be useful to have a lense without any color correction, if the elimination of other forms of aberration and curvature of field would be thereby facilitated.

The illumination used is always what is usually termed critical: that is to say, the light-source is in focus on the plate at the same time as the object being photographed, this being rendered possible by the uniformity of illumination over the whole of the light-source. In this connection we should like to put forth a theory of the well known phenomenon of the flooding of light over the image at critical illumination when the aperture of the condenser is fully open. We believe that the explanation, at any rate of this, is that the image of the light-source which lies in the plane of the subject is not an infinitely thin plane, and there is so little depth of focus with a high-power objective that we have the effect of the image of a bright surface lying just in front or just behind the object and out of focus on the plate, producing the so-called flooding effect.

If we cut down the aperture of the condenser we eventually use only light which is almost parallel, and therefore obtain a shadow photograph which is absolutely free from flooding. If we cut down the aperture only a small amount we may do so sufficiently to make the effect of flooding negligible. In support of this we may mention that flooding is not obtained if the image of the light-source is very much out of focus. In the "Pointolite" lamp the curvature of the light-source will contribute to this effect.

In some of our earlier work we used an achromatic lens between the "Pointolite" lamp and the condenser, but it was the light-source which was always brought to a focus on the screen, and not the image of a diaphragm over the lens, as is sometimes done. This lens was used to magnify the image of the light-source so that a larger part of the object could be illuminated, but the same effect is now secured by bringing the lamp as close as possible to the condenser. In this way we can illuminate an area of the object, which is a little larger than the flat part of the microscopic field. This increases the ease of aligning the optical system, and moreover, slightly increases the working distance of the condenser, which, however, is never more than one millimeter.

The exposure with the orthochromatic process plates in use, with the green filter and a magnification up to four thousand diameters, varies from two to ten seconds. In this connection it is important to note that for all work requiring the greatest resolution process plates, that is, plates with a hard-working emulsion must be used.

Re-Wetting Negatives

To judge from the number of inquiries we get on the applicability of intensification and reduction processes to finished negatives, it is evident that a great many amateurs do not realize how very undesirable it is to re-wet a negative which has once been dried. The negatives about which we are asked are usually described as valuable or irreplaceable; and, if this description is correct, the last thing that should be attempted with them is one of these processes. Even when the intensification or reduction has been carried through properly, there is always the risk of the negative being injured while wet; but a still stronger argument against the practice is that one can seldom be sure that the negative is in a condition to undergo one of these operations successfully. Insufficient fixing or insufficient washing may cause an unsuspected irregularity in its composition, which will show itself in uneven action; and when once this arises, the negative is definitely ruined. Much better is it, if the negative is really valued, to make from it a positive by contact, and from this a fresh negative. Contrasts can be increased or decreased while so doing. Alternatively, an enlargement may be made, worked up, and rephotographed. Such methods have the very great advantage that, if the photographer fails in the first attempt, he can go on repeating the process indefinitely until he succeeds: and yet all the time he has the certainty that, at the worst, he will leave the negative in its original condition. If he must intensify or reduce a valuable negative, at least he should first make as good a positive from it as he can manage, so that, should anything go wrong, he has this to fall back on for producing a fresh negative. —*The Amateur Photographer.*

Bromoil Trans-Rhine

Apparently the Germans have been occupying themselves a good deal with the Bromoil process during the war. In the list of photographic text-books published by the Halle firm of Knapp, in the years 1917-19, we see four on Bromoil, one a fifth edition of Dr. Emil Meyer's text-book, another on the home-making of Bromoil inks, another on the Bromoil transfer process, and a third edition of Dr. Eder's treatise on gum-bichromate, oil, Bromoil, and other pigment processes. In a recent issue of *Photographische Rundschau,* Dr. Meyer describes a new species of "fake" in Bromoil printing. It consists in creating a fine grain over the picture by applying a fine spray of an alkaline solution to the print which has been allowed to swell as much as it will in cold water. The alkaline solution is one of five per cent potassium carbonate, and it would seem that its application is a delicate business, requiring to be done under conditions of illumination which allow of the fineness and evenness of the spraying being very closely observed. The print must then be left to itself for a time, which depends on the temperature and on the kind of paper which is being used. It is then either rinsed or allowed to dry, and subsequently inked "up" in the usual manner, when, for the first time, the graining effect of the alkaline spraying becomes visible. It can easily be imagined that a process such as this very successfully adds to the uncertainties of the Bromoil process, but perhaps this is a recommendation rather than the reverse to the enthusiastic exponents of the process.—*British Journal of Photography.*

"Economy is too late at the bottom of the purse."—*Seneca.* Save first with W. S. S.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Answering Your Queries

This department might be headed: "Answers to Correspondents", or something like that, but we have never really liked the idea of such a department or rather of a department in which all inquiries were answered. Too often the answers, while of vital interest to the ones making the inquiry, have little interest for the general reader. In addition, keeping the inquirer waiting for a reply until the next issue of the magazine does not seem quite fair to him, particularly as he may want the information at once. Right here we must confess that while we try to answer all inquiries promptly by letter, the last few months have been quite busy ones, and owing to the rush a few inquiries have been neglected, in some cases because the query and an order for a renewal of a subscription were all in one letter, and that failed to be returned to us from the subscription department. If those who have been neglected will forgive us and repeat their inquiry, we will be only too glad to give them prompt attention. We want all our readers to feel at perfect liberty to write us at any time and we shall do all in our power to keep up our end of the correspondence. Such answers as seem of more than individual interest we will repeat in this department to the extent that space permits, but that will not delay the regular answer being sent forward by letter.

Local Intensification With Varnish

The well known ground-glass substitute, made by dissolving forty-five grains of gum sandarac and ten grains of gum mastic in each ounce of ether and then adding one-half the amount of benzol, will, if tinted with a yellow aniline dye, serve admirably as a means of strengthening definite portions of a negative by holding back the remainder. It should be flowed over the glass side of the negative, where it dries almost instantly, and then scraped away from over the high-lights and those parts of the image that are not to be held back in the printing. The usual directions given with the formula for this varnish is to modify the fineness of the grain by increasing or decreasing the proportion of the benzole, adding from one to six ounces of the benzole to each eight ounces of the gum in ether solution, the mean being four ounces as advised above.

Black Stains In Reducing

An Iowa reader writes that he has been using Belitzki's reducer with a great deal of satisfaction, but when employed on negatives developed with pyro he gets ugly black stains that seem almost unremovable. The trouble is that most writers, in giving the formula, advise that the negatives can be reduced directly from the hypo bath. If the hypo bath contains any small amount of pyro, that amount combines with the iron salt in the reducer and forms black ink, in fact, our best black writing ink is made of practically the same chemicals, namely, gallic and iron compounds. With negatives developed by any of the modern developers there is not this difficulty; and in the case of pyro, it is only necessary to wash out the possibly pyro contaminated fixing bath before immersing in the reducer. The formula is a simple one. Twenty-two grains of ferric oxalate and eighteen grains of sodium sulphite are dissolved in each ounce of water, forming a deep red solution. To this is gradually added some oxalic acid, and as the color turns green the solution is decanted off and to each ounce is added a half ounce of a fifty per cent solution of hypo, completing the reducer, which keeps for months and can be used over and over. It is also excellent for bromide and gaslight prints.

Latitude of the Plate

One of our correspondents recently became interested in the comparative amounts of latitude possessed by different plates, not only plates of different speed and quality

by the same manufacturer, but plates of different manufacturers. Applying to us for information, we could only advise in a general way, qualifying such advice by the suggestion that in different hands, different procedure in developing might give different results. What we advised was that he try out the desired plates himself, suggesting a plan that he proceeded to carry out. The equipment consisted of six pieces of good dense press board, just the width of his dark slides and about an inch longer, in each of which was to be cut a perpendicular, inch wide slot, each such slot being in a different position as regards its distance from the end, these to be used in making repeated exposures on one plate. With the plates to be tested in his holders, the camera was set up facing an ordinary landscape, one of an even character from side to side, the lens opened to the largest stop and the shutter set to one twenty-fifth of a second. The first plate to be tested, in position in the camera, the original slide was withdrawn and the press board substitute with the inch slot nearest the end, inserted, and an exposure made. Then the next substitute slide was inserted, the one with the inch slot a little farther from the end, the stop reduced to the next smaller, and another exposure given, and so on until all six press board slides had been used and the original solid slide placed in position at the end of the procedure. This gave him his 5x7 plate carrying six exposed strips, all having one twenty-fifth second exposure, but with stops ranging from f-5.6 to f-32. Three holders had been loaded with six different kinds of plates and all were exposed upon the same scene and in the same manner, in rapid succession. To be sure that all would receive exactly the same treatment they were developed at the same time in a large tray used for enlargements. The individual plates were removed from the developer as they seemed to show the best possible average quality throughout the six strips. As it so happened, all six of the plates were of approximately the same speed. Had there been any having somewhat slower or faster speed, it would obviously have been better to have varied the shutter speed accordingly, at least approximately. At any rate, our correspondent is satisfied that he has secured an amount of knowledge as to comparative behavior of different emulsions well worth the cost of the plates, the time consumed, and the slight disadvantage of having on hand eleven plates of six different kinds. But even this last he claims is not so great a disadvantage as might at first appear, because he knows just how each kind works under his method of development and he can use them to good advantage for work to which their differences adapt them. As we have already hinted, it is obvious that no good would result from publishing his findings; in fact, harm might be done.

Light Fog

We all know what happens when the camera bellows suddenly develops a tiny hole which can scarcely be seen, but causes such disaster to the sensitive plates, yet exactly similar conditions often obtain in many photographers' dark-rooms, causing mysterious marks on sensitive material.

When printing bromide papers, some workers are apt to regard the process as one that can be worked in a flood of yellow light, and that a little stray reflected white light does no damage. The working light should be of an amber color rather than canary yellow, and it would well repay any worker to test the safety of the light in the following way: Place a piece of rapid bromide paper film up at the usual working distance from the light, put a couple of coins on the sensitive surface, and leave for say ten minutes. Then develop the paper for the usual time, and note the result. If no fog appears the light is reasonably safe, but many workers will be surprised at the amount of light fog given by what was hitherto considered a safe light.

Another prolific cause of fog is white light coming under or over a badly hung door, but we think that perhaps the largest amount of damage is done by printers who open the package of bromide paper, place the pile handy, and then switch on white light in their printing box to adjust the negative. The reflected white light causes fog on the edges of the paper. The remedy is to always use a light-proof box which can be quickly opened and shut, to hold the paper before and after exposure.—*Trade Notes,* RAJAR, LIMITED.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

Officers of the I. P. A.

F. B. Hinman, President, Evergreen, Jefferson County, Colo.

J. H. Winchell, Chief Album Director, R. F. D., No. 2, Painesville, Ohio.

Fayette J. Clute, General Secretary, 413-415 Claus Spreckels Building, San Francisco.

Answers to inquiries concerning membership and membership blanks will be supplied by the State secretaries. Album directors are at present acting as State secretaries in such of their respective States as have as yet no secretaries.

John Bieseman, Director Post Card Division, Hemlock, Ohio.

James B. Warner, Director Stereoscopic Division, 413-415 Claus Spreckels Building, San Francisco.

A. E. Davies, Director Western Lantern Slide Division, 1327 Grove St., Berkeley, Cal.

Arthur H. Farrow, Director Eastern Lantern Slide Division, 51 Richelieu Terrace, Newark, N. J.

NEW MEMBERS

4777—Souhei Nakano, 969 Handa-Cho, Aichiken, Japan.
4¾x6½ and smaller, on gaslight, bromide and carbon, of pictorial or artistic subjects, landscape, portrait, landscape with figures and portrait with landscape settings. Class 3.

4778—F. C. Greene, Box 75, Columbia Falls, Mont.
3¼x5½, smaller and enlargements, on all kinds of paper, of mountain views. Class 2.

4779—John L. Grupe, 809 Courtlandt Ave., Bronx, N. Y.
3¼x4½, 4x5, 5x8 and 8x10, on developing paper, of portraits and scenery; for anything of interest. Class 1.

4780—John J. Leeflang, 2140 Verbeng St., Oakland, Calif.
3¼x4¼, of general subjects. Class 2.

4781—L. R. Smith, 2609 Grant St., Berkeley, Calif. Class 3.

4782—Walter Saunders, 215 Church St., South Williamsport, Pa. Class 2.

4783—Patsy S. Coluni, Personnel Office, U. S. A., Balloon School, Fort Omaha, Nebr.
Any size up to 3¼x5½, on glossy developing paper, of views, parades, and general; for anything of interest. No postal cards. Class 1.

4784—Irving Miner, Cornell, Ill.
2½x4¼ and 3¼x5½, on developing paper, of landscapes and still life. Class 2.

4785—Kenneth McLean, care Miss Scheuble, Caledon, C. P., South Africa.
2¼x3¼, on developing and self-toning paper, of miscellaneous subjects; for same, beach scenes and engineering subjects. Class 1.

4786—Otto Bower, Montesano, Wash.
4¼x6½ (10x16 cm.), on semi-matt devcloping paper, of typical scenes, landscapes, etc.; for miscellaneous subjects. Class 2.

4787—Gunder Omland, McIntosh, Minn. Class 2.

4788—John C. Clement, Seal Harbor, Me.
3¼x5½ to 8x10, on developing and bromide paper, of landscapes, marines and mountain views; for same. Class 2.

4789—Lewis F. Hile, care Intake P. H., Groveland, Calif.
2¼x4¼ and 3¼x5½, on printing-out and developing paper, of snow, mountain, wild flower, marine and figure studies, draped and undraped; for same class of subjects. My best collection is in the 2¼x4¼, made with Graflex. Class 1.

4790—G. E. Bowman, 228 N. F St., Tulare, Calif.
5x7, on developing paper, of mountain scenery and miscellaneous subjects; for miscellaneous. Class 1.

4791—J. C. Mortensen, 215 Pope St., Benton, Ill.
3¼x4¼, on developing paper, of pure bred animals, rural views and some historical; for pure bred animals, field crops and rural views. Class 1.

4792—Fred C. Gorham, 1203½ Court St., Saginaw, Mich.
2½x4¼, on various papers, of views, groups, portraits, babies, parades, etc.; for athletic sports, figure studies, parade and action pictures. Class 1.

4793—Roland O. Hammond, Jr., 4127 Berenice Ave., Los Angeles, Calif.
4x5 and 5x7, on developing paper, of shipping and marine. Class 3.

4794—Paul J. Standar, Dunsmuir, Calif.
3¼x5½, 5x7, and 6½x8½, on developing paper, of scenery, mountains, etc.; for scenery, mountain views, bathing girls, draped and undraped figure studies. I desire to exchange only up to 6½x8½. Class 1.

4795—Stanley L. Chisholm, 128 Melrose St., Melrose Highlands, Mass.
Up to 5x7, on developing paper, of miscellaneous subjects. Class 3.

4796—Alfred Rizzoli, 40 Douglas St., San Francisco, Calif. Class 2.

4797—C. H. Swarbe, Fort Thompson, S. Dak.
3¼x5½, on developing paper, of Indian life, outdoor scenes and landscape; for scenery and outdoor views. Prints only. Class 1.

4798—Chas. B. Shepherd, Traer, Iowa. Class 3.

RENEWALS

2498—B. B. Sprout, 216 First Natl. Bank Bldg., Williamsport, Pa.
2¼x3¼ to 5x7, and enlargements to 6½x8½, of miscellaneous subjects; for same. Class 1.

3908—S. J. Anderson, Box 32, Bellaire, Ohio.
3¼x5½ and 5x7, on developing paper, of Cuban views, lake views, historical subjects, bathing girls and other subjects of interest; for like good work. All photographs to be sent by first class mail. Class 1.

4273—Jack Massey, Box 316, Dade City, Fla.
4x6½ cm. up to 8x14 cm., on developing paper, of Florida landscapes, for California landscapes, bathing girls and pretty poses. Class 1.

4355—C. S. Beardsley, Box 573, Vallejo, Calif. Class 3.

4447—G. W. Grant, 3817 E. 14th St., Oakland, Calif.

4488—Walter Saunders, 215 Church St., South Williamsport, Pa.
Class 3.

4615—Bruce Stone, R. F. D. 1, Box 98, Jacksboro, Tenn.
$3\frac{1}{4}$x$5\frac{1}{2}$ and $2\frac{1}{4}$x$3\frac{1}{2}$, on developing paper, of mountain and railroad scenery and groups of children and pits; for good interesting pictures. Class 1.

4634—Chas. N. Fenton, 203 Copster Hill Road, Oldham, England.
$2\frac{1}{2}$x$3\frac{1}{2}$, $3\frac{1}{4}$x$4\frac{1}{4}$, $3\frac{1}{2}$x$5\frac{1}{2}$, on various papers, of landscapes, marines, portraits and general subjects; for anything of interest; also lantern slides. Class 1.

4639—Linn Ricketts, Box 14, Mason, Nev.
Class 3 for present.

4665—Tom Kildoyle, Esq., care Int. Tdg. Corp., Ltd., 225 Yamashito-Cho, Yokohama, Japan.
Class 3.

4692—Benjamin Beauchamp, County Monaghan, Castleblayney, Ireland.
$4\frac{3}{4}$x$6\frac{1}{2}$ on printing-out and developing paper, of views of Castleblayney and Irish homes and peasants; only the one size exchanged; for views of Niagara Falls, American cities, life and typical subjects.
Class 1.

CLUB NEWS AND NOTES

Associated Camera Clubs

Notice has been sent to all the camera clubs known to the secretary, and it is desired to reach all others as well, announcing that the date of entry of print and lantern slide sets for the interchanges closes November tenth next. All clubs are urged to take part and details can be obtained by addressing Louis F. Bucher, Secretary, A. C. C. of A., 878 Broad Street, Newark, New Jersey.

OUR BOOK SHELVES

"Finishing Prints In Black and White, and Colors"

This book, by G. Hammer Croughton, an artist, critic and judge at many prominent photographic exhibitions, is of no small value to the beginner, as well as to the finished artist. Work in conte crayons, castell polychromes, pastel, transparent oil colors, oil colors on gelatino-bromide papers, transparent water colors, permanent water colors and concluding advice, make up the first part. The second part of the book is devoted to retouching, preparing the negative, retaining the modeling, the use of the knife or etcher, treatment of the background and the like. While not a bulky volume the instruction given is full and complete; and what is more, can be considered authoritative and well worth being carried out to the letter by the worker desirous of perfecting himself in this branch of art. The book is one of the Abel Publications, published by The Abel Publishing Company, Caxton Building, Cleveland, Ohio. The same firm publish other good things for the photographer as well as the popular little *Abel's Weekly*, a magazine that should be in the hands of every professional photographer.

"If You Don't Write Fiction"

In this handsome little volume Charles Phelps Cushing, himself a "free lance", writes for the magazines, gives us a wealth of good suggestions that will do much to help us avoid disappointment in our efforts to market our photographic skill in the form of illustrations to more or less ambitious "stories", as all the non-fiction or feature articles are called. The importance of the camera in this class of work is clearly set forth, and somewhat in contrast to the unimportance of literary skill, any lack of which is so easily supplied by the always available "re-write" man. The book does not aim to achieve the impossible, to tell one just where he can send anything he may produce and expect a check in return; but it does tell one how he may avoid a deal of useless sending and how he may improve his chances of acceptance as a result of his more judicious forwarding. The book is one that we can recommend to such of our readers as may be contemplating the offering of their camera products to periodical publishers. Published by Robert H. McBride and Company, New York. Price one dollar, net.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

The Victor Projector Catalogue

Catalogue No. 19, carrying revised price list of Victor projection apparatus and supplies, should be in the hands of all those interested in reliable yet moderate priced equipment, particularly that of a portable nature, for the projection of lantern slides. The Victor line includes a wide variety, ranging from the compact and efficient little Viopticon to the Victor high power dissolving stereopticon. Storage batteries, rheostats, lamps, screens, carriers, cases, stock slides, etc., are listed. Victor projectors are used in large numbers by Y. M. C. A.'s, state universities, large business firms, lodges and educational bodies, over twenty-five thousand being in use. Address Victor Animatograph Company, Davenport, Iowa, and ask for this interesting catalogue.

New Gundlach-Manhattan Catalogue

This new catalogue lists the Korono series of cameras, the Korono and Criterion view, Korono home portrait outfit, Korono panoramic and the Korono banquet cameras. Equally interesting, if not more so, is the section devoted to lenses, headed by the well known convertible anastigmat, the Turner-Reich, that gives the worker three different focal lengths in the one lens. Besides lenses of usual form, this firm manufacture and list several that should be given more consideration by the photographers, particularly as their price is quite moderate. These are the Achromatic Meniscus portrait lens for soft effects, the Pancratic Telephoto and the inexpensive wide angle that comes in so handy for special work. Send for a copy of this new catalogue, addressing: Gundlach-Manhattan Optical Company, Rochester, New York.

An Attractive Bargain List

Attractive in the matter of prices and further so because of the reputation for fair dealing of the firm behind it is "Bulletin No. 135", just gotten out by Willoughby's, Incorporated, 110 West Thirty-second street, New York. It contains some excellent bargains in cameras and lenses, and such of our readers as are interested in good used apparatus should send at once for a copy. The firm makes an offer to repurchase any Graflex, Kodak or Anastigmat lens any time within three months, paying seventy-five per cent of the purchase price, of course equal in condition less reasonable wear, and this is indeed good evidence of their confidence in their goods and the prices made.

New Lens Prices

The Wollensak Optical Company of Rochester, New York, announces that, owing to further increase in cost of raw material and labor, they find it necessary to increase their list prices in accord with a new list being sent out. They sincerely regret this action, but in order to give to the trade the best that can be produced, the best of product must be used and the highest type of mechanic employed, leaves no alternative. Revisions have been very moderate in some cases, in others in proportion to the increase in cost.

The Wynne Exposure Meter

The accuracy and reliability of the Wynne meter is hardly open to discussion at this late date, when so many workers have placed their dependance upon it for so many years, only to recommend it more strongly as the years pass along. While not absolutely new, the hunter case style is a great improvement over the older form and makes an ideal pocket companion on one's photographic trips. Closed for the pocket it has the size and appearance of a thin, small lady's watch; and when, like several that we have recently seen, the case is embellished by a neatly engraved monogram, costing but a small sum at any jewelers, the satisfaction of carrying such a reliable exposure calculator becomes a double pleasure. Ask your dealer to show you one, and if he does not have them in stock, get him to order one for you from

the American agents, George Murphy, Incorporated, 57 East Ninth Street, New York. This firm will gladly send you free descriptive circulars upon request.

Illinois College of Photography

A recent arrival is Usaku Tojo of Kojimachi, Tokyo, Japan. Being a professional photographer, he is here for a post graduate course. Upon completion of his work he will go to Europe for a visit, after which he will return to his native land.

Convinced that there is money to be made in the photographic profession, Fred W. Daglish has opened a studio in Calgary, Ontario, Canada. Since leaving the College, he has been employed in the Finley Studio there.

Secretary LeGrand A. Flack has just returned from East St. Louis, where he attended the Semi-Annual Conclave of the Mississippi Valley Consistory, at which he was made a Thirty-second Degree Mason. He speaks of the work in the highest terms.

Professor D. J. Cook is in receipt of a letter from Mr. and Mrs. P. A. Kingsbury (the latter better known as Miss Olga I. Marohn), asking that he O. K. the "great event" in their lives, as he formerly did their negatives. They will make their home in Cleveland, Ohio, and our wish is that they may "live happily ever after".

Lloyd I. Snodgrass of Auburn, New York, and Herbert Anderson of Milwaukee, Wisconsin, have just been added to the instructional force. Both these men are skilled workmen and artists.

An excellent showing for the Photographer's Association of America has been made by the students. At present there are thirty-five who are members, and others are planing to enter. All students are urged to join this worth-while organization.

Since the beginning of the new year, seventeen have been granted "sheepskins". Many others who have taken shorter courses than the one required for graduation, have been awarded certificates, according to the workmanship ability.

George Graham Holloway of Terre Haute, Indiana, the foremost photographer of that city and a past president of the P. A. of A., was in Effingham recently for a talk to the students. The Camera Club rooms were filled with students desirous of profiting by his interesting talk to the students on Photo Miniatures. The student body is ready to recommend Mr. Holloway as an instructive lecturer at any time.

Trade Printing

The season which has now started promises to be a record one for those who specialize in developing films and plates, and supplying prints therefrom. It is lamentably true that the bulk of amateur "snapshots" are underexposed, with the inevitable result that the images are thin and weak.

Gaslight paper with its characteristic brilliance and increased contrast is a valuable aid to the printer who makes a point of always producing the best possible print from every negative. Negatives of all kinds, soft, hard, thin, and dense, have to be dealth with, but none of them should present any tenors to the worker who takes care to choose the correct grade of paper to suit the negative.

We think that there is not sufficient attention given to the all-important question of choosing just the right grade of paper to suit the negative. We hold no brief for the printer who claims to produce his results by tricks in development. The development of a print should, excepting in certain circumstances, be purely a mechanical operation of full development of all light action..

As regards developer, either amidol or M.-Q. can be used, but we prefer the latter. The formula we give below is particularly suitable to the trade printer for use with plates, films and papers:

M.-Q. ALL-PURPOSES DEVELOPER

Metol	½ ounce
Sodium sulphite	1 pound
Hydroquinone	2 ounces
Sodium carbonate	1 pound
Potassium bromide	160 grains
Water to make	2 gallons

In making up this developer, put the water, warm, in a two-gallon jar and add about one ounce of sodium sulphite. When dissolved, add the metol and then the balance of the sodium sulphite. The other ingredients should be added in the order given.

This developer is double strength and should be used with an equal amount of water for films, plates and bromide papers. For gaslight paper it should be used full strength.—Rajar Limited, Moberly, England.

CAMERA WANTS

Advertisements of the nature shown below will be inserted under this heading at the rate of fifty cents each insertion, for twenty-five words or less; each additional word, two cents extra, cash with order. Those of positions wanted inserted once free. No regular business advertisements accepted.

Hereafter, in counting words, such groups of letters, figures, or figures and letters as B. & L., $300.00, 8x10, 10½-in., f-4.5, Ser. III, No. 3, 3A, and the like, may be considered as one word. The advertiser's own or firm name can be counted as two, and any reasonable address as five words, except as the actual number of words in the latter may be less. These advertisements **MUST BE PREPAID**, and if any excess is sent, it will be returned with our acknowledgment of the order. Advertisements reaching us later than the eighteenth must be held over until the next following month.

BOOKS Photographic books and magazines of all kinds bought and sold. Back issues of many magazines on hand. List sent for stamp. Please state needs, as supply on hand is continually changing. Harry A. Brodine, 777 Forest Ave., Bronx, New York.

WANTED Negatives of Yosemite Valley. Will buy scenic negatives of all kinds. Address D. E. A., care Camera Craft, San Francisco, Cal.

FOR SALE Studio doing better than $1000.00 per month, at Sacramento, Cal. Address S. A. C., care Camera Craft, San Francisco, Cal.

EXCHANGE Have you a picture that's odd, funny or a freak? I have and will exchange with you. Any size up to 6x8. Cobb X. Shinn, Liberty Bldg., Indianapolis, Ind.

RETOUCHING Correctly handled by an expert. Color specialist in portraiture and landscape. Emerson Beers, Room 119 Callaghan Bldg., 1112 Market St., San Francisco, Calif.

TAHITI L. Gauthier, the leading photographer, retiring after 15 prosperous years, offers his studio, business and private home for sale. Largest and best equipped curio shop attached to the studio, together with a very prosperous jewelry department; also garden, auto garage, etc. Rare opportunity. Great future. Can clear $4000.00 with studio alone. For full particulars address, L. Gauthier, Papeete, Tahiti.

FOR SALE Ernemann Focal Plane Camera, 3¼ x4¼, Suter f-6.8 Anastigmat in focusing mount, film pack adapter and case. Focal plane shutters need fixing, sell $25.00. Voigtlander Collinear f-5.6 in Volute, 3¼x4¼, $30.00. Voigtlander Radio, f-6.8, 3¼x4¼, in Compound shutter, $25.00. Goerz Syntor, f-6.8, in Auto Shutter, $17.00. 3¼x4¼ Sylvan, f-6.8, 6-in. focus in Compound, $27.00. Wiripool print washer, 24-in., $6.00. Seneca Cameras, side swing and sliding partitions; one 6½x8½, case, 11 plateholders, $30.00; one 8x10, case, 5x7 extra back, 12 plateholders, $35.00; one 11x14, 3 plateholders, $40.00. Also have Voigtlander Collinear Anastigmat lenses and extra lens boards and flanges. Two film numbering machines: perforates numbers like Ansco film, $6.00 and $7.00. Folmer & Schwing vignetter, $6.00. 12x 42 printing frame, extra heavy, and glass, $6.00. Adams & Bagnal 15-amp. arc lamp and controller, about 20 imported carbons, 20-ft. stage cable, $25.00. Ingento changing bag, $2.50. Schoberg Home Portrait flashlight outfit or portable skylight, with tripod, no lamp bag, 3 ft. wide and 4 ft. high, $15.00. 3 vols. "Wilson's Photographic Magazine", 34, 35 and 36, bound, $5.00. Any of above shipped C.O.D., subject to examination upon deposit with your local express agent or money sufficient to guarantee charges both ways. Geo. Schulz, Calumet, Mich.

WANTED Original negatives of draped and undraped figure studies. Send proofs and prices to Box 296, Baltimore, Md.

WANTED Kodak finishing studio, or studio with a large kodak trade, located in California, Oregon or Washington. L. L. Hatlett, Fairfield, Ill.

FOR QUICK Sale. The Eddy Studio at Payette, Idaho. Good territory to draw from. No competition. Price right if taken at once. Mrs. J. V. Potter, Payette, Idaho.

MUST SELL At once, new established amateur kodak finishing business. Reason, employed in railroad service and cannot attend to both at once. Good opening for a man working up post card business; town 6000; well located; ground floor; rent reasonable; $600.00 stock; all new and all apparatus for handling a large amount of work; $800.00; $400.00 down, balance on easy terms. Address H. A. F., 386 North Front St., Marshfield, Ore.

A SNAP 3A Filmplate Premo, equipped with Voigtlander Dynar f-6 lens in Compound shutter, adapter; new. C. W. Maddox, Box 64, Butler, Mo.

REAL Opportunity. Ideal county seat studio; finely equipped; modern, metal frame, prism glass, north skylight. A going concern, established 8 years; no real competition; immense territory to draw from. Possibilities limited only by ability and capacity of operator. Guaranteed investment for $1500.00, original cost of establishing. Owner retiring. Address Photographer, Eversole Bldg., Ukiah, Calif.

WANTED Business partner in the photographing of children. Knowledge of business not necessary. Middle aged woman preferred. Address Dad Aitken, 184 S. First St., San Jose. Calif.

WANTED Good kodak finisher and dark-room man. Steady work. Must be ready to leave if wired for. State ability and experience in first letter. Address Photographer, Box 1647, Anchorage, Alaska.

FOR SALE or Trade—Anastigmat lenses, Busch Omnar, f-5.5, 10-in. focus, Automatic shutter. Turner-Reich, Ser. II, f-6.8, 7½-in. focus, Acme shutter. Cooke, Ser. II, f-4.5, 7-in. focus, Optimo shutter. Voigtlander Euryscope, f-7, 11½-in. focus, Studio shutter. Mentor Reflex,4x5 camera, holders and adapter; Newman & Guardia Reflex, 3¼x4¼, Carl Zeiss Protar VIIa lens, case and slides; best Reflex made. 4A Kodak with speed equipment. Pony Premo No. 7, case and holders. Write for particulars. A. C. Barber, State House, Salem, Ore

FOR SALE B. & L. high power telephoto attachment No. 4; never used. A bargain at $35.00; sells at $52.00. Also 11x14 B. & L. Tessar, f-4.5; never used. Will take $250.00 cash. F. M. Irving, 927 Harrison St., Kansas City, Mo.

FOR SALE 6½x8½ Cycle Graphic with Cirkut attachment. Only used three times. Cost $246.00; will take $185.00. A. Kastner, 313 N. Los Angeles St., Los Angeles, Calif.

WANTED By reliable established photo dealer, negatives of bathing or gymnasium girls. Send proofs and prices to The Cosmopolitan Collecting Agency, Box 222, Athol, Mass.

FOR SALE Best equipped studio in St. Louis. Central location. June receipts were over $700.00. Art Photo Shop, Easton and Taylor Aves., St. Louis, Mo.

CAMERA WANTS—Continued.

FOR SALE Studio, everything new, good location, living rooms; rent $25.00. Most prosperous county in state. Population 30,000. Write for particulars, Donati's Studio, Raton, N. Mex.

FOR SALE Studio outfit. 8x10 camera, lens, shutter, stand, vignetter, with 5x7 attachment and holders. A bargain at $75.00 f. o. b. Fresno. Address E. P. C., Box 1207, Fresno, Calif.

FOR SALE or Exchange. Hall Mirror camera (like Graflex), with Cooke 5x7 lens, practically new. Splendid outfit. $60.00. Will take Vest Pocket camera in part payment. C. J. Mitchell, 1912 Sacramento St., Berkeley, Calif.

FOR SALE No. 2, 9x9 F. & S. Studio shutter; new; lists $16.25, sell for $12.00. 11x14 Portrait camera, Benster holder, six 5x7 plateholders, stand. Old, but in working order; good for copying. Make offer. Caroll Studio, Marysville, Calif.

FOR SALE 8x10 Portrait Euryscope, Series IV, in perfect condition; none better for high class portrait work. Lists $115.00, sell for $65.00. A. B. Nelson, 620 Spring St., Eau Claire, Wis.

FOR SALE Ingento Special 3A film camera, all movements rack and pinion. Dynar f-6 Anastigmat lens, Compound shutter, velvet lined case with lock and key. Like new, $52.50. W. Hanson, 40 Smith Ave., Detroit, Mich.

FOR SALE 5x7 Competitor View, fitted with Conley f-4.5 Anastigmat lens in Optimo shutter, 4 plateholders, tripod, carrying case; all in first class condition. Best offer takes outfit. F. H. Maybury, 623 Poydras St., New Orleans, La.

FOR SALE One almost new equipment for studio, including lens, cameras, backgrounds, printing machine, etc. Will sell any or all together. State wants and send for description and prices. Jesse L. Blickenstaff, North Manchester, Ind.

FOR SALE Auto Graflex, like new; Goerz Celor, f-4.5, 6-in. focus lens, adapter, one plateholder; also new velvet lined, sole leather carrying case. First $100.00 offer takes it. R. R. Bowers, Thayer, Kans.

FOR SALE A good paying studio on ground floor in one of the livest towns in Southern Oregon. Address G. K., care Camera Craft, Claus Spreckels Bldg., San Francisco, Calif.

FOR SALE The following cameras purchased for use in army. No more use for them and will sell at less than half price. Terms, cash with order. Return if not satisfactory on receipt and money refunded. V. P. Seneca, f-7.5 Anastigmat, Trio shutter; shows use but fine working order, $10.00. Eastman Panoram No. 4, uses 4x5 film; fine condition, $15.00. Alamo M. P. camera, f-6.5 lens; uses 50 ft. standard M. P. film, one loading, 2 extra daylight loading magazines, panoram tripod; used only for 200 ft. film; standard in every way; size 3x5x8; fine condition, $45.00. Alamo Junior M. P. camera, uses 100 ft. M. P. standard size film, 2 extra daylight loading magazines; heavy panoram tripod, carrying case, f-3.5 lens, standard and trick shutter; all in new condition, $150.00. Simplex Multi-Exposure camera; takes 200 or 400 exposures on 50 ft. of standard M. P. film; f-6.5 lens, Optimo shutter; condition like new; ideal for tourists, $25.00. Developing outfit for M. P. film; 3 very large trays and reel for 50 ft. of film; good used condition, $10.00. A. G. Chittick, Frankfort, Ind.

FOR SALE Leading studio in city of 25,000 (Washington). Well equipped and best location. Established eleven years. Net profits 1919, $5196.00. Studio work only. Will require $1500 cash, balance on time. Address Box 356, care Camera Craft, San Francisco, Calif.

WANTED One Gray Wide Angle lens, 6½, 7½, 9, 11-inch focus. Geo. E. Lawrence Co., 44 High St., Boston, Mass.

WANTED One Ansco Amateur Printer and one Eastman Kodak Enlarging Outfit. Both must be late models and in good condition. Ivy Morgan, Sylvan Grove, Kans.

FOR SALE Sanderson camera, Tropical model, post card size, double extension, fitted with Voigtlander lens, Compound shutter, extra back for 4x5 pictures, 3 double 3¼x5½ plateholders, 3 double 4x5 plateholders, 2 adapters, 4x5 and 3x5½, tripod, focusing cloth and carrying case. Price $140.00. Address Box 66, Camera Craft, San Francisco, Calif.

FOR SALE or Trade. 5x12 Al Vista Panorama, A-1 shape, $18.00. 5x7 Plastograph lens in Safety shutter of exceptional speed, $8.00. H. G. Raveling, Warren, Minn.

FOR SALE Ground floor studio in Western Pennsylvania, 15,000 population, doing fine business in portraiture, commercial work, framing, kodak finishing and supplies. Over $4500.00 a year. Will sell for $1500.00. I. N., care Camera Craft, San Francisco, Calif.

FOR SALE 5x7 Speed Graphic, 5 plateholders, used very little; no lens; $39.00. 6½x8½ Tele-Poco view camera, R. R. lens, shutter and plateholder, $14.00. 50-foot Alamo moving picture camera, extra magazine case and good heavy tripod, $29.00. Glen Smith, 2600 Renick St., St. Joseph, Mo.

FOR SALE 4x5 Telescopic R. B. Graflex with carrying case and 5 extra plateholders and case and film pack adapter. All new, for $125.00. U. A. Donati, Santa Fe, N. M.

FOR SALE Eight room, ground floor studio, fully equipped with best of lenses and cameras, including 8x10. Double slant, north skylight, Northern Light and flash light equipment. Electric printers and driers and everything complete to do first class work. A fine business for three good workmen. Fine location on main street; town surrounded by prosperous and beautiful farming, dairy, lumber and mining country. Best of fishing, hunting and other sports. Business established 14 years. Price $3000.00, including building. Reason for selling: Have Made Good. For further particulars send self-addressed envelope to Smith's Photo Studio, Colville, Wash.

FOR SALE B. & L. Model B Balopticon, complete in case, $15.00. Combination back for 3A Kodak with two double holders, $4.00. E. F. Carter, R. F. D. No. 3, Missoula, Mont.

WANTED Work in studio in San Francisco or Oakland by lady who can do any line except retouching. Can do coloring. Address Box 65, Crescent City, Calif.

WANTED One 11C or 12E and one 20D Illuminator with stand, Parallex condensers, good condition. Photo Art Co., Salt Lake City, Utah.

WANTED Alamo motion picture camera with Tessar f-3.5 lens or without lens. State price, condition, etc. L. E. Hippler, 2815 East 19th St., Spokane, Wash.

WANTED High grade team of two printers who can handle large quantity of work. Black-and-white, sepias, vignettes, sheet prints and enlargements. Large studio, over-night from Chicago. Easy hours, no Sunday work. Write at once stating references, age, ability, health, hahits, salary, etc. T. H. S., care Camera Craft, San Francisco, Calif.

WANTED Young man who is a good general workman; must be able to retouch. One who is qualified can secure an interest in the business later. State age, experience and salary expected. The Fotoplace, Jerome, Ariz.

WANTED Photographer desires to buy whole or half interest in studio or amateur finishing business on Pacific Coast. Address Photographer, care Camera Craft, San Francisco, Calif.

WANTED Roll holder or film pack adapter for post card size Goerz Anshutz camera. M. Feinstein, 1129 S. Ashland Bldg., Chicago, Ill.

COLORING Portraits and views done in oil. Enlargements made. Prints of California for sale. Art Studio, 237 24th Ave. (Phone Pacific 4922), San Francisco, Calif.

WANTED Graflex, 3¼x5½ or larger or 3A Special Eastman. Must be in good condition. Give full description, including extras, with cash price. Noah Adair, San Bernardino, Calif.

CAMERA WANTS—Continued.

WANTED Position as an all around man in a first class photograph studio. Operating, retouching, negative and positive printing and enlarging. Open for engagement October first. References given. Address F 523, Camera Craft, San Francisco, Calif.

POSITION Wanted in studio in California, by woman with 8 years experience in all branches of photography. Can accept position by middle or last of September. Box 140, Camera Craft, San Francisco, Calif.

EXCHANGE Ernemann camera, Carl Zeiss Tessar f-6.3 lens, focal plane shutter, speed to 1/2500; also Auto shutter, speed to 1/100. Film pack adapter, 3 plateholders, size of picture, 1¾x2⅜. Has ground glass attachment, plush lined, sole leather case. Takes Premo film pack. If you want a real camera, write me at once. I want revolving back Auto Graflex, 3¼x4¼, with or without lens; must be in good condition. Geo. T. Wilkins, 1252 E. Third St., Long Beach, Calif.

SEATTLE Photo studio for sale. In good working order, in finest location in the prosperous city of Seattle, Washington. Price $500.00. For full particulars address A. M. B., care Camera Craft, San Francisco, Calif.

$30.00 an 18-in. single condensing lens in first class condition. Address A. W. C., care Camera Craft, San Francisco, Calif.

WILL James A. Blackledge communicate with "China"? Address Box 83, Camera Craft, San Francisco, Calif.

FOR SALE Portrait lens, 6½x8½, f-4; printing frames, studio shutters, background frames, outside show cases, large card mounts. Bargains. V. Janisch, 720 Olive St., St. Louis, Mo.

FOR SALE Auto Graflex Jr., 2¼x3¼, Zeiss Anastigmat f-6.3 lens, film pack adapter and carrying case. Fine condition. 3A Eastman 3¼x5½ with R. R. lens and leather carrying case. H. L. McLean, 637 N. California St., Stockton, Calif.

WANTED Will buy amateur negatives of Yosemite, Tahoe, Redwoods, sunsets, etc. Send description and price. Amateur Photographer, 1644 Summit Ave., Pasadena, Calif.

WANTED Ica-Lloyd Stereo Panoram with Hekla or f-6.3 Tessars in Compound shutter. Must be in first class condition and reasonably priced. Dr. C. W. Pratt, Calumet, Mich.

WANTED Steady position with commercial photographer. Good operator and printer. Many years practical experience. G. Weiser, care Brown Studio Co., 625 Fourth St., Sioux City, Iowa.

WANTED Salesmen and stock clerks by large San Francisco photo stock house. State age, experience (if any), and references. Box 41, Camera Craft, San Francisco, Calif.

FOR SALE 14-year established studio, centrally located in San Jose, equipped for portraiture, commercial work and kodak finishing; doing good business; rent $37.50, including light, heat, water, janitor and elevator service. Owner retiring from business. Address S. H. B., care Camera Craft, San Francisco, Calif.

FOR SALE Studio outfit, 8x10 camera, lens, shutter, vignetter and stand. Also 5x7 attachment and holders. This is a bargain at $75.00 f. o. b. Fresno. Address E. P. C., Box 1207, Fresno, Calif.

WANTED VIIa Goerz Dagor or like lens of about 16½-in. focus, to cut 7x17 plate, in Compound or other good shutter. Will pay cash or trade late model Press Graflex. J. C. Bowen, 4219 14th Ave. N. E., Seattle, Wash.

FOR SALE 3¼x5½ Compact Graflex with B. & L. Ic Tessar f-4.5 lens, roll holder and leather carrying case. C. H. Alexander, 1100 Fenimore St., Fairmount, W. Va.

FOR SALE 8x10 Korona View camera, fitted with 8x10 Plastigmat lens in Auto shutter; extra 8x10 Sterling Wide Angle lens, in barrel, 3 plateholders, combination tripod, carrying case. Outfit like new and in perfect condition. Price $100.00 cash. F. H. Maybury, 623 Poydras St., New Orleans, La.

FOR SALE 3¼x4¼ Telescopic R. B. Graflex, Cooke f-4.5, 6½-in. lens, 7 plateholders, 2 magazines, $125.00. No. 1 Special Kodak, B. & L. Ic Tessar, f-4.5, $60.00. P. T. Tarnoski, 1810 Humboldt Blvd., Chicago, Ill.

FOR SALE 5x7 Stereoscopic and regular camera; genuine mahogany, leather covered; equipped with fine focal plane shutter, also Wollensak Stereo shutter, matched rapid symmetrical lenses; perfect shape. Sacrifice, $28.00. Benj. Graham, 2243 Fitzwater St., Philadelphia, Pa.

FOR SALE Five 36-in. direct current Cooper-Hewitt movable skylight tubes. Suitable for live photographer. Fred Havercamp, 520 Market St., Chester, Pa.

GROUND FLOOR Studio in Seattle, Wash., for sale. Fine downtown location. A one-man studio doing over $12,000.00 yearly. Expenses small. Established over 12 years; same owner. Good clean work; no coupons; prices from $3.00 to $25.00 per doz. Fully equipped. Fine skylight; also Aristo lamp and cabinet for sittings. Fine display windows. Price $3000.00. Owner independent, wishes to retire. Address S. W., care Camera Craft, San Francisco, Calif.

FOR SALE or Trade: Beautiful high grade portrait lens, 8x10, f-4 Scientific in new No. 6 Packard shutter. Also camera, stand, curtain holders, front boards, etc., in fair condition. First check for $85.00 takes everything. Would sell separately or consider good equal value trade. Wiswall's, 1300 Willow St., Trinidad, Colo.

FOR SALE Auto Graflex Sr., 3 plateholders, film pack adapter and case, f-4.5 Tessar lens; all positively new; $85.00. Peter W. Lohr, 928 Washington Ave., Racine, Wis.

NEWS Photographers wanted. We need correspondents everywhere. If you have an outfit adapted to news photgraphy write us immediately. Pictura Pictures, 352 Schenck Ave., Brooklyn, N. Y.

TO BUY Photographer desires to buy whole or half interest in studio or amateur finishing business on Pacific Coast. Address Photographer H, care Camera Craft, San Francisco, Calif.

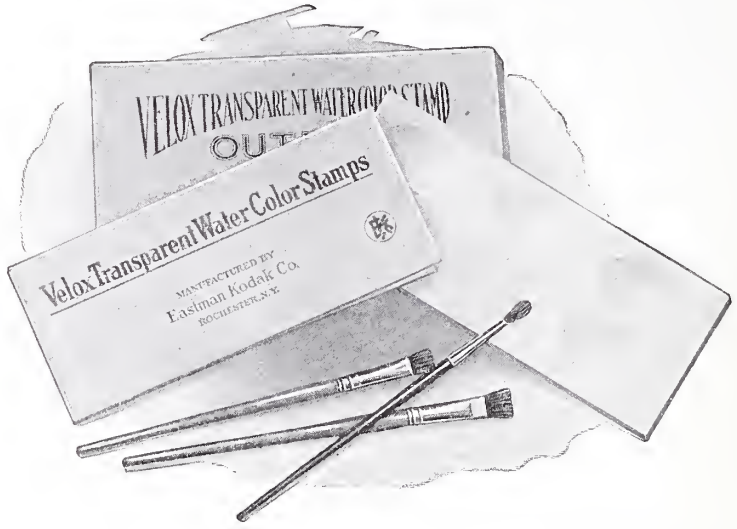
FOR SALE Cooke lens, Series IV, f-5.6, 8-in. focus; perfect condition; $60.00. A. E. Davies, 1327 Grove St., Berkeley, Calif.

FOR SALE Verito, 14½-in., in Studio shutter; cost $85.00, $60.00; Verito, 7-in., in barrel, cost $35.00, $25.00; 5x7 Newark Reflex, no lens, 6 Graphic holders with case, cost $160.00, $75.00. A. E. Davies, 1327 Grove St., Berkeley, Calif.

SPOT CASH and highest prices for your camera or lens. Write brief description of what you have. We will make you a cash offer by return mail. If you wish, you may send your goods, subject to our offer, and if our offer is not satisfactory, we will prepay charges on your goods in returning them to you. **Bass Camera Co., 109 N. Dearborn St., Chicago, Ill.**

We will pay you the highest price for your camera or lens. Furnish us with the best description you possibly can and you will receive our trade or cash offer. If you prefer, you can send in your goods subject to our inspection and then, if our offer is unsatisfactory, we will return your goods charges prepaid. Central Camera Co., 124 So. Wabash Ave., Chicago, Ill.

G. E. BIDDELL & CO. CAMERA DOCTORS 53 FOURTH ST., NEAR MARKET SAN FRANCISCO, - CALIFORNIA



Velox Transparent Water Color Stamps

A LANDSCAPE in black and white is one thing.
A landscape that glows with colors as the eye saw them is quite another.
Color your prints. It is simple to use Velox Stamps—nor is artistic skill required.

The Velox Transparent Water Color Stamp Outfit offers the greatest convenience in coloring, as it includes the book of stamps, three brushes and a white enameled mixing palette, put up in a neat cardboard case.

Velox Transparent Water Color Stamps, complete booklet, twelve colors,	$0.45
Separate Color Leaves, two sheets,	.08
Set of three Special Brushes, per set,	.50
Mixing Palette,	.25
Velox Transparent Water Color Stamp Outfit, including book, three brushes and palette,	1.00

EASTMAN KODAK COMPANY
ROCHESTER, N. Y.

Kodak Self-Timer

Price, $1.25

COMPOSE the view and establish the focus—then the Kodak Self-Timer operates the cable release and makes the picture. The time elapsing between the instant the Timer is set and the "click" is under your control—plenty of time to rejoin the group or to pose for your own portrait.

Eastman Thermometer

Price, $1.00

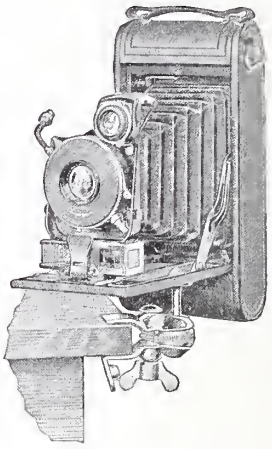
A RELIABLE thermometer for any photographic purpose, but particularly adapted through its curved back and hook top for use with the Kodak Film Tank.

EASTMAN KODAK COMPANY
ROCHESTER, N. Y.

POCKET TRIPODS

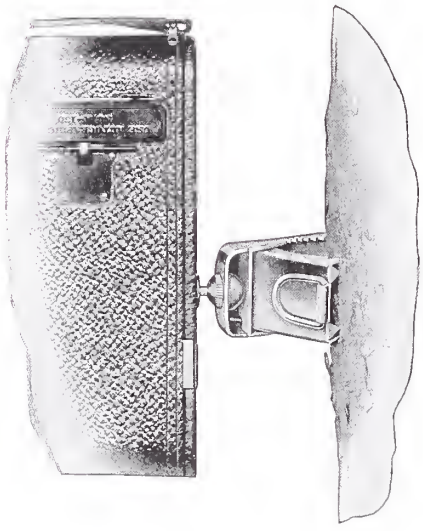
The Optipod

Price, $1.00



THE Optipod embodies all the features of the old Universal Clamp as well as offering new conveniences. It may be readily attached to any straight edge such as is afforded by table, chair or automobile windshield, and holds the camera in rigid position during exposure.

Used in connection with a tripod, the Optipod offers the advantage of its ball and socket joint that permits the camera to be tilted down or up without altering the position of the tripod.



The Kodapod

Price, $1.50

THE Kodapod bites the bark of a tree with a grip so tight that rigid support is given to the camera. It serves every purpose of a tripod when tree or fence is available — and yet there's room for it in the vest pocket.

EASTMAN KODAK COMPANY
ROCHESTER, N. Y.

ELON

Now

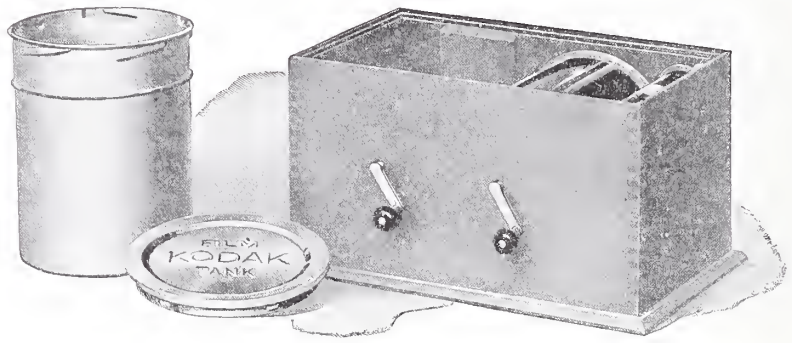
$11.25 per pound

We make it—we know it's right.

EASTMAN KODAK COMPANY,
ROCHESTER, N. Y.

All dealers'.

All by Daylight



Kodak Film Tank

TAKE it with you—there's plenty of room for it in your vacation luggage. The outfit is self-contained, as the metal tank fits in the box. And think of the pleasure of seeing "how the pictures came out" whenever you will, wherever you are.

Price, $3.50 up

EASTMAN KODAK COMPANY
ROCHESTER, N. Y.

THIS seal outside means that the chemical or chemical preparation inside has measured up to the necessarily exacting demands of the dominant photographic organization of the world.

Look for the Eastman Tested Chemical seal—and find it.

Kodak

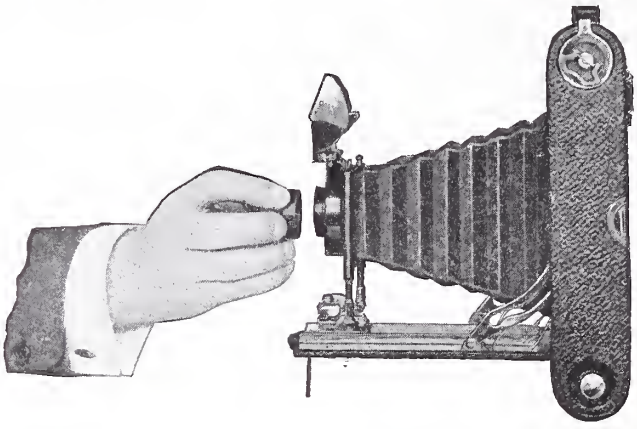
RIGHT now a happy choice for outdoor pictures.

A rich green tone that gives a touch of realism to the seascape or landscape is secured without redeveloping.

In operation, Kodak Velvet Green is very similar to Velox.

EASTMAN KODAK COMPANY
ROCHESTER, N. Y.

You can work within arm's length of your subject with a



KODAK PORTRAIT ATTACHMENT

It's called the Portrait Attachment, because it makes possible head and shoulder studies that fill the picture area. But that is not all it can do.

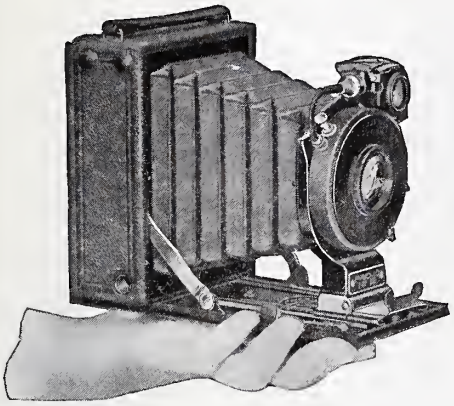
Close-ups of every description—pictures of flowers, for example, made at such close range that all the detail observed by careful inspection of the eye is reproduced in the print—come within the province of the Kodak Portrait Attachment.

It's just an extra lens—clap it on when you need it—slip it off when you don't.

Price, 75c.

EASTMAN KODAK COMPANY

ROCHESTER, N. Y.



Premo No. 12

—a small camera
—of wide range
—and high quality

IN a camera whose outside measurements are only 1⅝ x 3¼ x 4⅝ inches, you do not expect to find equipment permitting:

—pictures 2¼ x 3¼ inches.

—shutter speed of $\frac{1}{300}$ of a second.

—the choice of cartridge film, Premo Film Pack or orthochromatic and panchromatic plates.

—optional focusing on ground glass or with specially equipped finder.

But you do find all these in the *Premo Twelve*. With all its equipment, it is small; but with all its smallness, there is no sacrifice of efficiency.

Premo catalogue free at your dealer's or by mail.

Eastman Kodak Company

Rochester Optical Department ROCHESTER, N. Y.

GRAFLEX

CAUGHT—and in every detail. One can almost hear the smashing, tearing effort of bone and sinew.

Graflex was not made for speed pictures alone. It is equally effective for making pictures of average subjects, with a certainty that is only possible the Graflex way—landscapes, marine views, birds and insect studies—fully timed negatives in light thought impossible for photography—pictures on cloudy or rainy days, indoor or outdoor portraits—through the whole gamut of subjects that have a trace of appeal.

Eastman Kodak Company

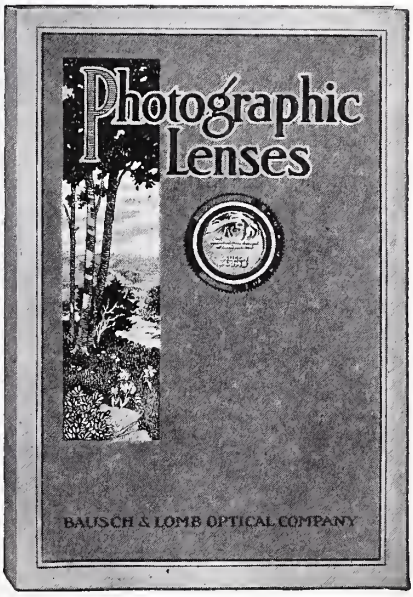
Folmer & Schwing Department Rochester, N. Y.

Catalogue free at your Dealer's or by mail.

Work of Reference and Art Album

in one volume. That is what the new catalogue of

BAUSCH and LOMB Anastigmat Lenses



amounts to. Just from the press, with new illustrations throughout, it will excite the admiration of all lovers of artistic printing and book-making. It is also significant as the first complete catalogue of this line which we have been able to publish since before the war.

The publication contains a fund of technical and practical information regarding photographic terms, optical properties of lenses, advice as to the most suitable lens equipment for the various types of photography and a liberal assortment of specimen photographie reproductions.

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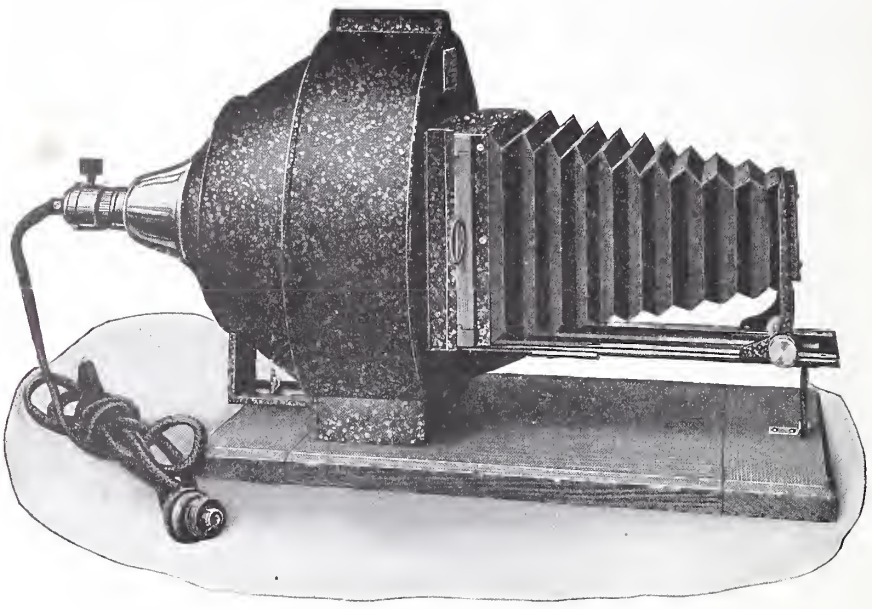

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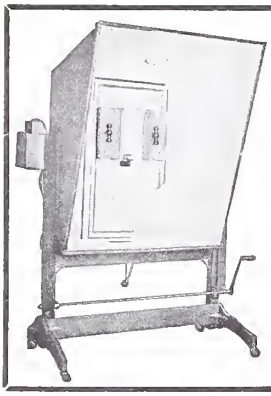

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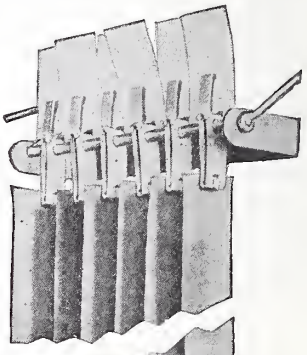

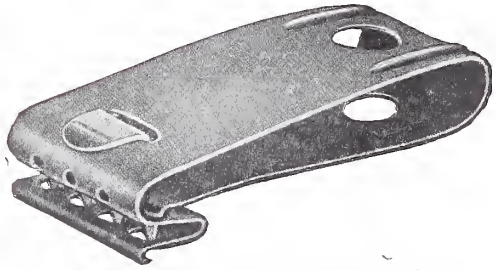

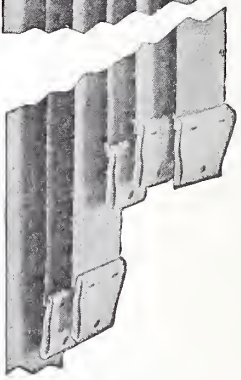

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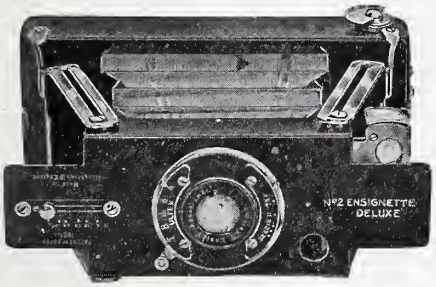

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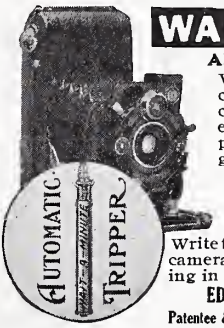

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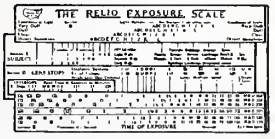

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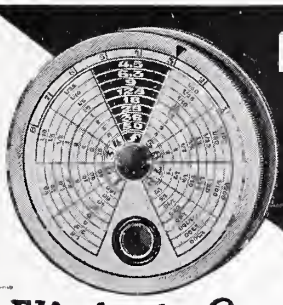

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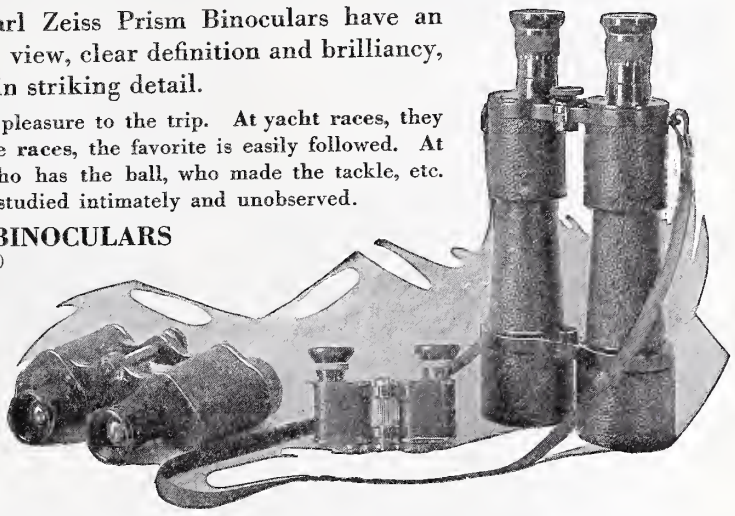

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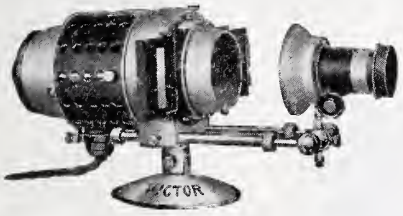

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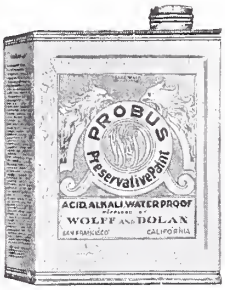

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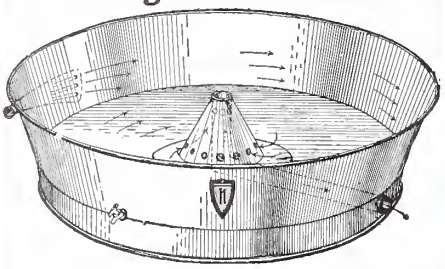

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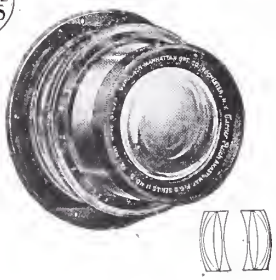

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Is the highest in illuminating quality, therefore but small quantities need be used.

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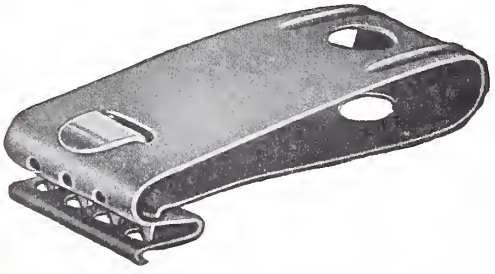

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AT $9.00 PER GROSS

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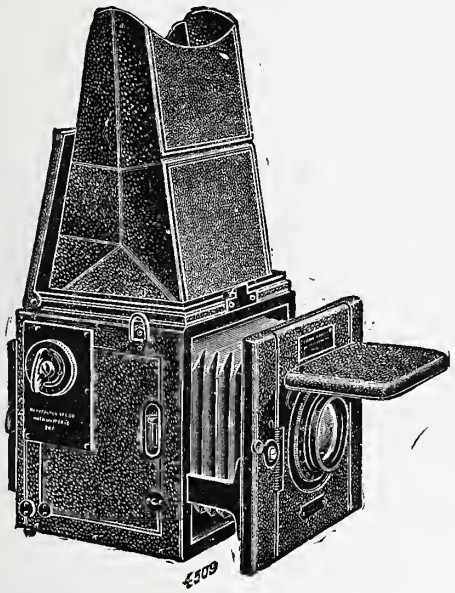

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Equipped with the Ensign Self-Capping Focal Plane Shutter, all speeds and tensions set from the one dial.

Light in weight, strong construction, fitted with a large selection of high grade anastigmat lenses.

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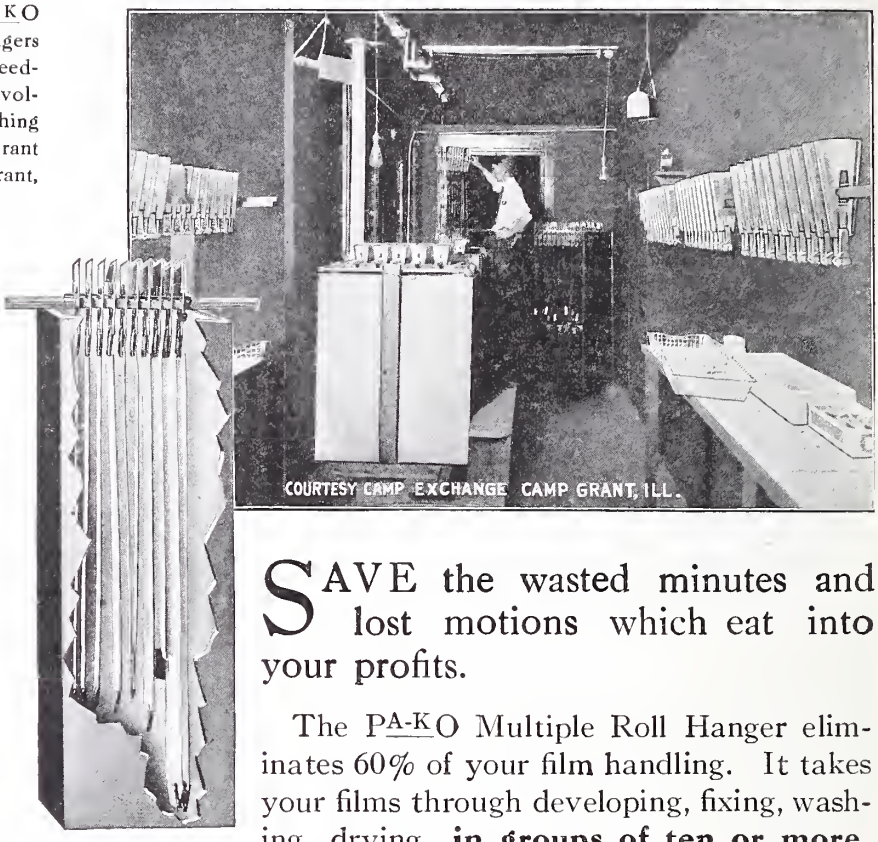


SAVE the wasted minutes and lost motions which eat into your profits.

The PA-KO Multiple Roll Hanger eliminates 60% of your film handling. It takes your films through developing, fixing, washing, drying, **in groups of ten or more.** Ten rolls of film are developed with the same ease and speed with which you now handle one.

Each film goes through the whole process **with its proper order attached.** No numbering of films is necessary—there are no mixed orders—your sorting time is cut to a minimum.

It works like a charm. Loading is made quick and convenient by the wall bracket provided. Orders are attached and a single movement telescopes the group for developing, fixing and washing. When ready for drying a second move-

PHOTOGRAPHIC
MINNEAPOLIS

OFF YOUR COSTS

ment expands the group for better air circulation. Each motion, each step, is multiplied by ten.

Think of the advantages:

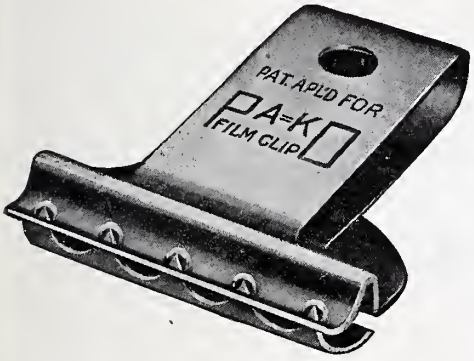
Faster operation brings quicker service.

Labor cost is lowered.

Confusion is eliminated.

Your routine is simplified.

Order enough PA-KO Hangers **now** to handle rush season work promptly and easily. You will realize better returns from your business because of these shortcuts.



HERE'S the boon companion to the Hanger. They're built to work together as an efficient team. However, the PA-KO Film Clip will better the results of any type hanger.

You will note the difference in this clip—it appeals to finishers who want to get the most out of their business.

Chemicals drain off perfectly, because the specially shaped jaw prevents film contact with flat surfaces.

Jaws open one-half inch for fast loading.

Constructed of twenty-gauge brass, heavily nickeled—makes an ideal bottom weight for tank development.

Be ready for the heavy summer rush. Get your order in to your supply house for immediate delivery.

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GOERZ

Goerz Dagor F:6.8

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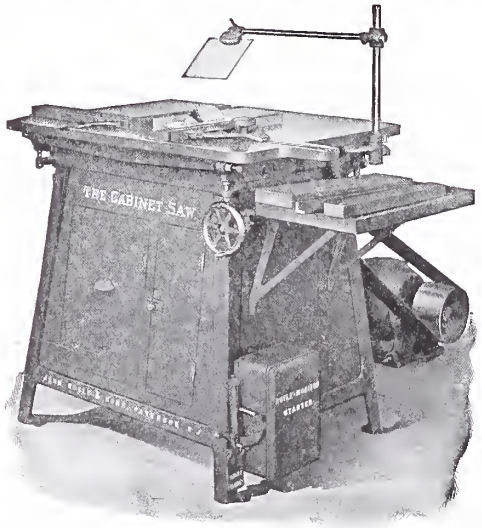
C.P. GOERZ AMERICAN OPTICAL COMPANY
321 EAST 34TH STREET: NEW YORK CITY

AMONG PHOTOGRAPHERS



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Circular Giving Full Details of the New

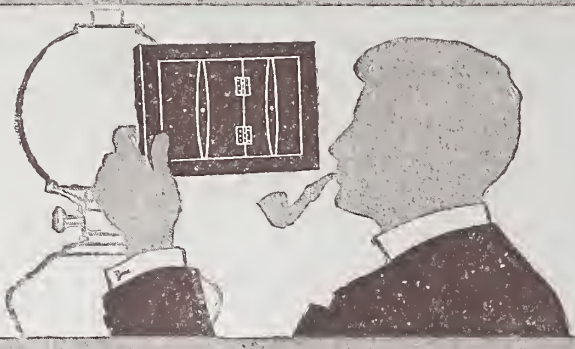
Photographic Competition

May be secured either from your Kodak dealer or from us

THE terms of this competition are the same as those for the competition announced last month, except that this time the pictures must have been made prior to August 15, 1920.

Competition Closes
November 1, 1920

EASTMAN KODAK COMPANY
ROCHESTER, N. Y.



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